The RUBBER AGE

VOL. 27, NO. 8 JULY 25, 1930

LATE NEWS of the Industry

Goodrich Transfers Some Export Business From Akron to Its Factories in Canada

TRANSFER of part of the B. F. Goodrich Company's tire and footwear export business to the Canadian plants at Kitchener, Ont., was announced on July 10. It is reported that the business of the Ontario subsidiary will be more than doubled as a result of the company's decision.

James D. Tew, president of the company, paid a brief visit to Kitchener and conferred with D. L. Sargeant, manager of the branch factory. Mr. Tew predicted a great revival in industry would occur within a short time and, that by bringing to Canada the Goodrich company's large export business, both the company and Canadian workmen would benefit.

A substantial part of the items exported will continue to be manufactured in Akron, however, it was learned from S. M. Jett, Goodrich secretary. Mr. Jett declined to estimate the amount of business that will be taken away from Akron with the change. He also refused to say whether traffic restrictions are influencing the move.

A principal objective of manufacturing export goods at the Canadian plant, Mr. Jett said, was to serve better the company's trade in the British dominions. Goodrich has been producing a fair volume of export goods at the Canadian factory for some time, he added.

"While most of our export goods will be made in Canada in the future, this does not mean that we will discontinue all export manufacturing in Akron," Mr. Jett stated. "Increasing export production in Canada is merely an addition to an established program of Canadian production and should not be interpreted as meaning that there is any fixed determination to abandon functions of the Akron plant."

V. I. Montenyohl, Goodrich treasurer, was inclined to discount the importance of the proposed shift in operations. "It merely means," he declared, "the transfer of perhaps a daily production of 1,200 pairs of footwear in comparison with the company's entire daily output of 105,000 pairs, with most of our footwear made at the Watertown plant and none in Akron. As to the Kitchener plant's future tire business, we expect to have from 100 to 150 tires in production there daily. Our total daily tire production is something like 30,000.

"The only question of tariff involved is perhaps the expectation of the company deriving a preferential in supplying British possessions. The slight shift to the Canadian plant is in accordance with the concern's usual program of switching production whenever the need arises. For instance, the slight change to be made at the Canadian plant may be canceled within 30 days and we may augment production at some other plant instead."

Executives of the Goodyear Tire & Rubber Company and the Firestone Tire & Rubber Company have issued statements to the effect that the new Goodrich policy will not be followed by similar announcements from their own offices. Goodyear maintains plants at Bowmanville and New Toronto, Ont., while the Firestone organization has a factory at Hamilton, Ont.

Thermoid Company Omits Common Dividend As Business and Profit Fall Behind 1929

ANTICIPATING a reduction in earnings for the current year, directors of the Thermoid Company have decided to take no dividend action on the common stock at this time. The Thermoid Company, incorporated on January 28, 1929, is the outgrowth of a business founded in 1897 and has as subsidiaries the Thermoid Rubber Company and the Stokes Asbestos Company, both wholly owned, and the Southern Asbestos Company, acquired on March 18, 1929, and now 94.4 per cent owned. The company's plants are at Trenton, N. J., and Charlotte, N. C.

Through its subsidiaries, the Thermoid Company is one of the principal manufacturers in the asbestos field. In addition to being one of the largest makers of automobile brake linings in the United States, the company produces automobile clutch rings and facings, rubber belting and hose, universal joint discs, auto radiator hose, asbestos packing and other asbestos products and mechanical rubber goods.

The average net profit of the Thermoid Company, as now constituted, for the past three years, has been close to $1,000,000 annually after interest, taxes, etc. Net for 1929 was $1,046,650, subject to a possible deduction of not exceeding $78,000 in Southern Asbestos Company earnings, which, the company states, appears probable but may be provided for by former officials. Net of Thermoid Company and wholly-owned subsidiaries for the year ended December 31, 1929, excluding any return from Southern Asbestos Company and inter-company profits, and after

depreciation, interest and federal taxes, but before providing for bonus to officers and employees, amounted to $683,074. Adding Southern Asbestos net earnings after all charges (less earnings applicable to the 5.6% minority interest), the total was $1,046,650.

After deducting the maximum annual dividend requirements on a total of 31,778 shares of 7% cumulative convertible preferred stock to be outstanding upon acquisition of the Southern Asbestos Co. stock as contemplated, the balance applicable to Thermoid common stock was $824,204, equal to $3.36 a share on 244,994 no-par common shares outstanding at the end of the year. Amount of preferred outstanding has been reduced from time to time and after deducting dividends actually paid during 1929 on the preferred and the maximum dividend requirements on the $1,469,600 par value of preferred to be issued under the exchange plan the balance was equal to $3.48 a common share. On basis of average number of shares outstanding during 1929 earnings were equal to $3.76 a share. Earnings of wholly-owned subsidiaries of Thermoid for year ended December 31, 1928, were equal to $3.33 a share based on 200,000 shares of Thermoid Company common stock outstanding at time of organization of present company.

Company's consolidated balance sheet as of December 31, 1929, showed cash of $277,615, and total current assets of $3,326,343, as compared with current liabilities of $553,791, or a ratio of better than six to one. Property, plant and equipment were carried at $2,931,357, and good-will, patents, trademarks, etc., at $2,840,305. Company has $2,953,500 of five-year 6% sinking fund notes, due February 1, 1934. Common stock and surplus were carried at $2,363,703, and total assets stood at $9,233,950.

Since the common stock of the Thermoid Company was listed on the New York Stock Exchange two months ago, it has declined from 26⅞ to 11 and is currently selling only slightly above its low point. Last year the common sold on the New York Curb Exchange as high as 38, while the 7 per cent preferred touched a high of 112⅜. This year the preferred has dropped from 87 to 65 and is now selling a little above the latter figure.

June Rubber Absorption at 34,463 Tons; Total for Six Months Was 216,182 Tons

WITH the exception of 1929, consumption of crude rubber for the first six months of 1930 was the highest on record. The figure, 216,182 long tons, although 19.3% below 1929, was 4.4% above the same period in 1928, 6.8% above 1927, 19.2% above 1926, 7.7% over 1925, 32.3% over 1924, 16.0% over 1923, 88.6% above 1922 and 266.9% above 1921.

Consumption of crude rubber of all classes by manufacturers in the United States in the month of June is estimated at 34,463 long tons, according to statistics compiled by the Rubber Manufacturers Association. This compares with estimated consumption of 39,902 long tons in May, 43,228 long tons in June, 1929, and 37,676 long tons in June, 1928. While consumption for June was 20.3% below June a year ago and 8.5% below June, 1928, it was 5.8% above the average June consumption for the past eight years.

Imports of crude rubber of all classes into the United States during the month of June totaled 42,653 long tons according to estimates issued by the Rubber Manufacturers Association. This compares with the association's own estimate of imports of 40,745 long tons in May, 44,490 long tons in June, 1929, and 25,792 long tons in June, 1928.

The Association estimates total domestic stocks of crude rubber on hand and in transit overland on June 30 at 151,485 long tons compared with 146,179 long tons as of May 31, and with 92,062 long tons as of June 30, 1929. Crude rubber afloat for United States ports on June 30 is estimated at 58,657 long tons as against 68,168 long tons on May 31 and 54,668 long tons a year ago.

Raybestos-Manhattan, Inc., Prepares to Expand Its Rubber Belting Department

DIRECTORS of Raybestos-Manhattan, Inc., have authorized the purchase of additional equipment for the manufacture of V-type rubber belts for use as transmission drives in various kinds of industrial equipment. V-type belts were formerly used only for driving automobile fans.

The directors also authorized the purchase of additional equipment for the Manhattan Rubber Manufacturing Division to enlarge production by 300 per cent in the department making asbestos molded brake lining. The process of manufacturing molded brake linings and clutch facings through a combination of rubber and short fibred asbestos has already proved a profitable addition to the company's main operations.

Close to 50 per cent of the corporation's total volume of business is maintained by the Manhattan Rubber Manufacturing Division, which manufactures a line of about 30 principal rubber products finding a sales outlet in a diversified list of industries. In addition to its rubber belting, the division does a large business in varied types of rubber hose for transmission of liquids and compressed air. During the last five years, the company has developed an abrasive wheel for cutting purposes involving a mixture of rubber and carborundum, which replaces diamond saws and air tools, eliminating the necessity of hand finishing and reducing risks of breakage. This product found a rapidly expanding market in the stone cutting field.

Other operations of this division include the manufacture of a general line of rubber rolls for the printing industry, typewriter rolls, packings, tank linings, and other rubber products. The balance of the corporation's business is provided by the Raybestos and United States Asbestos Divisions, with the major proportion of operations centered in the production of molded brake linings and clutch facings for original equipment and replacement purposes.

Net earnings for the three months ended March 31 of $450,975 or 67 cents a share on the 676,012 no par common shares, showed a reduction of about 50 per cent from the net income of $912,700 in the first quarter of 1929, but were sufficient to cover the quarterly dividend of 65 cents a share. For the first six months of the current year, it is believed that net profits were close to $1,000,000 or nearly $1.50 a share. During the first half of 1929, net income was $2,098,530, or $3.10 a share.

Goodyear-Zeppelin Corporation Entry Wins Balloon Race by 850-Mile Flight

ALTHOUGH no new distance records were established, practically all entrants made flights of considerable length in the National Balloon Race, which was won by the bag of the Goodyear-Zeppelin Corporation after it had traveled from Houston, Tex., to Greensburg, Ky., a distance of about 850 miles. Piloted by R. J. Blair, with F. H. Trotter as aide, the Goodyear balloon started from Houston on July 4 and landed two days later, outdistancing the other 14 entries.

All of the first seven contestants traveled farther than the 350 miles set by the winning Goodyear entry in the international race last September, but fell short of the mark

established in the national races last year by Lieutenants T. G. W. Settle and Wilfred Bushnell, who sailed 952 miles from Pittsburgh, Pa., to Prince Edward Island, Canada.

The Detroit *Times* balloon and the United Van Service entry of Cleveland ran a close race for second place and a chance to compete in the international event at Cleveland on September 1, with the Detroit aeronauts apparently victors by a few miles. Pilot E. J. Hill and his aide, A. C. Schlosser, landed the Detroit *Times* balloon near Russellville, Ky., while the United Van Service balloon was brought down at Kirksmanville, Ky., by its pilots. Captain Fred S. Wilbur of the race committee calculated the distance of the Detroit *Times* balloon as 700 miles and that of the United Van Service bag at 685 miles.

Lieutenant Settle and Lieutenant R. G. Mayer, both of whom are connected with the United States Navy inspection bureau at the Goodyear-Zeppelin plant, won fourth place by landing near Dover, Tenn., a distance of 640 miles. Lieutenants Bushnell and J. A. Greenwald were fifth, followed by two Army balloons and another Navy entry. Placed after these were the entrants of the Aero Digest, the Kelvinator Corporation, the City of Houston, Detroit Aircraft, a third Army bag, and the General Electric Company of Cleveland.

Cooper Corporation Plans to Acquire Business of the Falls Rubber Company

CONSOLIDATION of the activities of the Falls Rubber Company, Cuyahoga Falls, O., and the Cooper Corporation, Findlay, O., has finally been effected by a contract in which the former has conveyed to the latter its business, factory, equipment, accounts receivable and certain other assets. The contract was dated June 30 but was not announced until two weeks later and is believed to have been the result of the acquisition of Falls and Cooper stock by the Master Tire & Rubber Corporation, recently formed as a managing and holding concern.

Efforts have been made to merge the two firms since last January, but stockholders of the Cooper Corporation on February 27 voted down the original amalgamation plan. The formation of the Master corporation to acquire the securities of both rubber companies followed.

According to the contract negotiated on June 30, the Falls Rubber Company has conveyed to the Cooper Corporation the following assets: all notes, trade acceptances, accounts receivable and shares of stock in subsidiary and other corporations; all raw materials, materials in process, finished merchandise, raw materials in transit, manufacturing, shipping and office supplies; all mold equipment and tube mold stands for the manufacture of all lines and sizes of tires and tubes manufactured by the Falls Rubber Company; all the right, title and interest of the Falls company in and to all trade names, business, good will, customers, dealers, agencies and trade facilities connected with the business of manufacturing and selling tires, tubes and other products of the Falls Rubber Company.

The Cooper Corporation has agreed to pay the Falls Rubber Company the realized value of all notes, trade acceptances, and accounts receivable, less three per cent, and the realized value of all materials and manufacturing, shipping and office supplies when, as and if realized. The Cooper Corporation has also agreed to pay the appraised value of all mold equipment and tube mold stands, the Falls company agreeing to use the sums realized for the payment of its own current liabilities and first mortgage series A notes. The Falls Rubber Company, however, has the option to repurchase all mold equipment and all machinery which Cooper shall have acquired, specially for the sale and manufacture of Falls tires.

The Cooper Corporation further agrees to devote its best efforts to the manufacturing, production, financing and sales of such lines and sizes of tires and tubes now manufactured by Falls under the distinctive trade names used by Falls as can be profitably produced and sold. Cooper agrees under the contract to pay to the Falls Rubber Company in substance a sum equal to one-third of the net profits realized by it from the Falls business.

May Casing Output at 6,098,527 Units; R. M. A. Finds Trade Conditions Sound

IT IS the opinion of the officials of the Rubber Manufacturers Association that conditions in the tire industry are fundamentally sound and show definite signs of progress. This belief is based on statistical data issued by that organization on July 15. According to these statistics, domestic production of pneumatic casings for the first five months of 1930 exceeded shipments by less than 7% as compared with 12% for the same period a year ago; 11% in 1928; 9% in 1927, and 20% in 1926.

Shipments of pneumatic casings for the month of May amounted to 5,564,236 and represent an increase of 2.5% over April, but a decrease of 22.5% under May, 1929, and 13.8% under May, 1928.

Production of pneumatic casings for the month of May is placed at 6,098,527, an increase of 1% over April, but a decrease of 25% under May a year ago and 9.7% below May, 1928. This figure is slightly higher than the preliminary one furnished to the National Business Survey Conference and published on June 28.

Inventories of pneumatic casings on hand May 31st although showing a seasonal increase of 2.7% over April 30th this year, were 20% below May 31st a year ago. The actual inventory figure at the end of May was 14,327,185 casings, slightly more than the preliminary estimate given the National Business Survey Conference.

Shipments of pneumatic casings for the first five months of 1930 were 23.7% under the same period in 1929; 11.2% under 1928; 4.6% under 1927; but 19.1% above 1926.

Production of inner tubes during May numbered 5,904,489, while shipments totaled 5,411,896 units, leaving inventories on May 31st at 14,775,364 tubes. Output of both balloon casings and inner tubes was the highest since June, 1929, but the total production figures was held down by the low number of high pressure casings and tubes turned out.

For the third consecutive month, shipments of solid and cushion tires exceeded production, bringing inventories down to the lowest figure in years. There were 22,336 tires produced, but shipments amounted to 32,568 units, leaving a May 31 stock of 144,073 tires.

The tire industry is estimated to have consumed 69,507,295 pounds of crude rubber and 23,249,237 pounds of cotton fabric during the month of May in the manufacture of all types of pneumatic casings, tubes and solid and cushion tires.

The association's estimates are based on reports furnished by manufacturers who produce approximately 75 per cent of the total for the United States, but have been adjusted to represent 100 per cent in the above figures.

Ajax Closing Wisconsin Plant

Plans for the removal to Charlotte, N. C., of the plant of the Ajax Rubber Company at Racine, Wis., have been announced by Charles R. Collins, vice-president of the McClaren Rubber Company, Ajax subsidiary at Charlotte. Machinery worth about $150,000 has already been moved to Charlotte, Mr. Collins stated.

(Other news of the industry will be found on Pages 429-435)

Panorama of the Factory on One of the Plantations

American Interests *in* *are* Going *into* Many

Capital Invested Is Estimated to Exceed $50,000,000 Acres of Which 155,000 Are Planted to Rubber—

TWELVE years ago when the world war was drawing to a close and when quantity production in the United States was the slogan and business expansion the keystone in all industry, this country suddenly awoke to the realization that as a consumer of crude rubber it was using 70 per cent of the total world's supply, but only producing a little over one per cent with American capital. The United States was entirely dependent upon Dutch and British plantation interests.

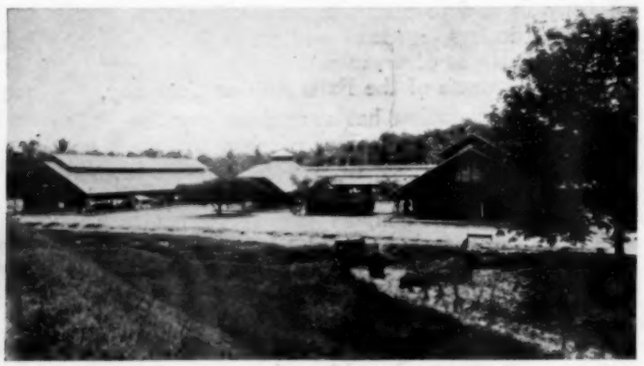
In 1918, an insignificant number of rubber plantations were controlled by American capital — United States and Goodyear being the only estates of any particular size. The "U. S." plantations in Sumatra were tappable as far back as 1914, yet at the close of the war they were still producing only a negligible tonnage. The Goodyear estates, also in Sumatra, were just coming into bearing at that time.

British capital was pouring into the rubber companies of the Middle East by the thousands of dollars. Rubber shares were the chief interests for investment on the London market and Mincing Lane completely dominated the trading prices on crude rubber throughout the world.

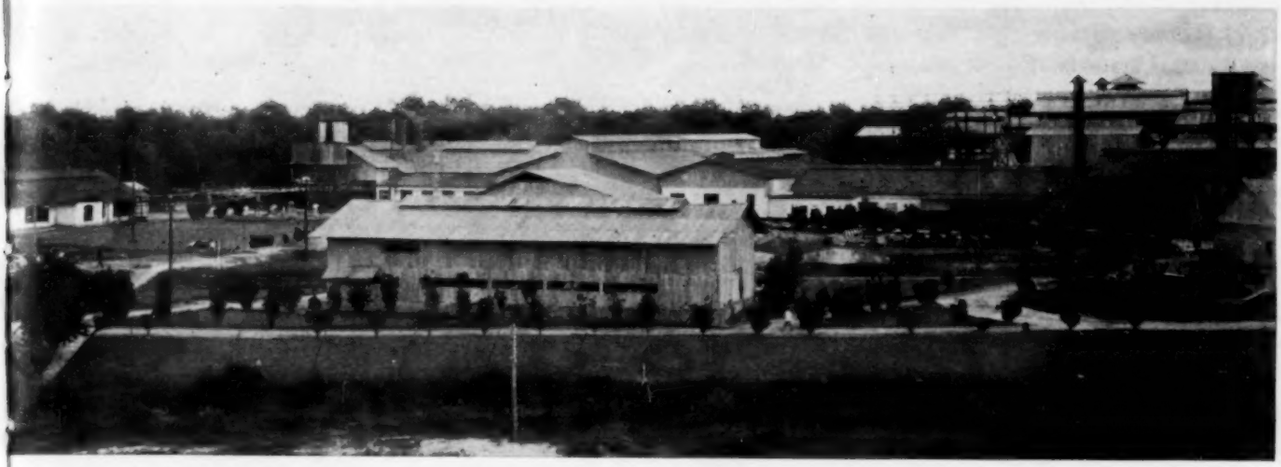
But suddenly, with the impetuosity of American enthusiasm, the United States manufacturers of rubber goods became alert, and accelerated by the action of the British government in 1922 in restricting the exportable output of rubber, began to seek sources and acquire properties for plantation developments which would make the consuming industry ultimately independent of British and Dutch control. Private individuals like Ford and Firestone have spent within the last few years millions of dollars in the interest of crude-rubber development. At the present time the capital invested in American rubber plantations is estimated to exceed $50,000,000.

To go back a little further, the World War had brought

Rubber on the Mount Barclay Estate, Liberia, Acquired by Firestone



"Kampong" on the Estates of the United States Rubber Company, Sumatra



the United States Rubber Company in Sumatra

ubber Planting Projects orners *of the* World

Total Property Holdings Approximating 5,000,000 action from American Estates Increasing Yearly

he United States the first realization of the necessity afeguarding for itself some proportion of this important material. The subsequent years of increasing activity re production and the rise in consumption of rubber all purposes actuated more energetic effort to secure ter independence in the matter of sources of supply crude rubber. The seriousness of dependence on Brit- nd Dutch interests for this necessary raw product con- ently was brought home more earnestly to American ufacturers.

American industry at once cleared for action. A con- sional investigation determined that such an important tion as Great Britain and the Netherlands controlling production and distribution of 95 per cent of the d's supply of rubber, of which 75 per cent was con- d in American rubber manufacturing establishments, not to be ignored, and appropriated $593,000 for a joint investigation by the Departments of Agriculture and Commerce to survey the available territory for American investment and development.

A series of carefully prepared reports were the result and these reports today are a tribute to the government's thoroughness, for in practically every area which was designated as favorable rubber-growing areas, some independent project has been begun or is under consideration.

Prior to the congressional investigation, all of the American-owned plantations in *Hevea* were located in the Netherland East Indies and British Malaya — the total acreage under American ownership in 1920 was approximately 150,000 acres with less than 47,000 acres in bearing.

American Plantations in 1920

Of the total of 150,000 acres, the plantations of the United States Rubber Company constituted the majority,

anese Women Planting Seeds in the Nursery of an American-Owned Estate

A Section of One of the Rubber Plantations of the Goodyear Company in Sumatra

or approximately 117,000 acres, of which 43,000 were in bearing, 11,000 planted but not yet producing, and 63,000 in reserve and not yet cleared. Goodyear had but 20,000 in bearing, 9,000 coming up in trees, and 9,000 additional acres cleared but unplanted. Continental Rubber Company had a mere 2,000 acres in Sumatra planted but not bearing, with 2,000 acres cleared but unplanted and 16,000 acres in reserve, but undeveloped. The Manhattan Rubber Manufacturing Company owned 1,200 producing acres in Java, and 800 acres planted but non-producing.

In other words, the total producing area under American management consisted of a bare 46,200 acres or 1.07 per cent of a grand total of 4,290,000 acres under cultivation in the Middle East.

A few scattered American-owned plantations of *Hevea* most of which had been abandoned, existed in Costa Rica, the Yucatan Peninsula of Mexico, and other parts of Central America. A number of *Castilla* and *Ceara* plantations started by American capital also were in a state of more or less somnambulistic existence in Central America and Mexico. And lastly, three experimental endeavors with *Hevea* were being started in the Philippines.

Plantation Railway on the Estate of the United States Rubber Company

Within two years or by 1922 the picture had changed materially. The number of companies had increased to twelve with seven showing results. Production had increased to 16,179,800 pounds as compared with an estimated 13,000,000 pounds in 1920.

Time passed. By the beginning of 1929 progress had been made in many directions. In every case the planted holdings of American companies in the Middle East had been increased. United States Rubber, Goodyear, and Continental all had increased their holdings, but in the meanwhile many new companies had entered the field. Firestone had gone into Liberia, Ford into Brazil, and Goodyear into the Philippines. The other smaller companies in the Philippine Islands on the Island of Basilan and in the Province of Cotabato had begun to market their smoked sheets in Singapore.

Fourteen companies were under the control of American dollars, thirteen of which were in bearing. Instead of the United States controlling a little over one per cent of the total producing area, it had increased its share to 90,000 acres out of a total of 6,700,000 acres in bearing and actually controlled about 5,000,000 acres in estates and concessions, a large proportion of which is in process of further planting developments.

Detailed statistics for 1929 are not available at present for many of the plantations, but the production of American-owned estates for that year is estimated at 47,100,000 pounds, or 4.47 per cent of our consumption in 1929.

The following table gives a new picture of American rubber-growing and projects at the close of 1928.

Planted Acreage and Production of American Owned Estates

Plantations	*Acres planted*	*Acres in tapping*	*Production pounds*	*Pounds per acre in tapping*
U. S. Rubber Co.....	88,304	59,000	28,767,000	488
Goodyear	16,635	14,705	6,293,879	428
Hawaiian Sumatra ..	3,337	2,428	1,130,230	465
Continental	4,447	3,861	1,000,458	259
Pahang	1,466	1,231	510,100	414
Manhattan	1,488	1,155	500,000	433
Firestone	31,077	1,077	249,088	231
Selama-Dindings ...	1,553	1,054	418,218	397
Tanjong Olak	951	951	157,415	166
Ford	1,000	....	.....	..
American*	1,800	1,400	364,000	260
Basilan*	1,100	797	207,220	260
Zamboanga*	110	110	28,600	260
Rio Grande*	1,600	360	93,600	260
Total	154,868	88,129	39,719,808	

*Philippine plantations, the total production of which was 692,384 pounds, making an average of 260 pounds per acre.

Nursery on the Goodyear Plantations in Sumatra

The negotiations of Firestone during 1925 with the Liberian government for a 1,000,000 acre tract and at the same time the lease from the government of a small plantation of *Hevea,* known as the Mt. Barclay estate, previously owned by a British company, have increased American holdings appreciably. Today the Firestone project is developing into one of the largest single plantation enterprises in the world.

The soil conditions in Liberia for the cultivation of rubber are reputed to be excellent with the price of labor and costs of living low. The old Mount Barclay plantation gave excellent results under its former ownership, but was forced to suspend operations, first, on account of the slump in the market, second, on account of the export tax, but mainly on account of mismanagement. The once-disturbing export tax on crude rubber has since been removed by the government.

The yieldings of the original plantation of 1,300 acres have been given better results in the past few years than in 1926 when Firestone first began to tap. Tapping has continued regularly since that date. The crude rubber is shipped to London, but reliable export figures are not obtainable.

At present Firestone has only a small area or about 70,000 acres under cultivation, but schemes under way call for a project of giant proportions. About 193 trees are being planted to the acre, with plans to thin to 100 per acre by tapping to death the poor yielders. Seeds are not being planted, but the trained agriculturists who are being

employed to study conditions are setting out shoots from the local nurseries.

On the Du plantation, 42 miles from Monrovia, on the Janus River, there are 35,000 acres of young trees ranging from one to four or five years of age. During 1929, an additional 20,000 acres at least were planted in the Cape Palmas region, about 20 miles inland from Harper along the Cavalla River.

The newly planted trees are thriving remarkably. The plantings which Firestone first made in 1925 are expected to be of a tappable age at the beginning of 1931.

Ford in Brazil

Henry Ford startled the rubber world in 1927 with his announcement of creating a rubber plantation in the heart of the Brazilian jungles. It was no pipe dream and Ford has entered into its undertaking with the seriousness which he gives to all of his projects. He ultimately acquired from the State Legislature of Para a concession of 3,700,000 acres of virgin land in the Boa Vista district on the Tapajoz River. Plans are now under way to develop this tract into the largest single plantation in the world.

So within the Amazon Valley, the native home of *Hevea*, Ford has been granted certain privileges which have enabled him to create a miniature empire of his own. Besides the rights to cultivate rubber, he has the privilege to build and operate factories for the preparation of crude rubber for the market and the manufacture of rubber goods. He can establish commissaries for the purpose of buying and selling necessary commodities such as drygoods, foodstuffs, drugs, and the like, to his employees and the general public. He has the permission to construct and operate railways, shipping lines, and all other mediums of transportation, to build docks and warehouses, and to carry on all other work necessary for port improvement. He can and has already built schools, hospitals, and various other institutions for religious and charitable purposes.

The transformation at Boa Vista has been remarkable. Two and one-half years ago, the settlement was an abandoned farm, today the town is on its way to become a city.

Within two years, 2,000 acres of land have been planted

A Stand of Excellent Rubber Trees in Tapping on the U. S. Rubber Company Property

with rubber seedlings and at the close of December 31, 1929, an additional 500 acres had been cleared ready for planting.

Owing to the fact that the neighboring State of Amazonas placed an embargo on a certain shipment of rubber seeds which the Ford company had acquired in the State of Matto Grosso and the Territory of Acre, where it was passing through that State's domain, the first rubber plantation was made with poor seeds obtained near the concession and planted too late in the season to give the best results. That caused a loss of over 90 per cent of the planting. The company is now replanting the first area with first quality black seeds, especially acquired by its experts, who had been sent to several distant regions of Matto Grosso and the Acre Territory for that particular purpose.

Ford was compelled to appeal to the Supreme Court at Rio de Janeiro to obtain an injunction against the State of Amazonas and to be granted permission for securing and transporting rubber seeds from every State of the Brazilian Union.

Knowing the thoroughness with which Ford carries through his ideas, one can look for a stupendous rubber plantation development going at full blast in the center of the Brazilian jungles within a very few years. The size of the undertaking can be estimated when it is known that at the close of January 30, 1930, there were 2,500 laborers on the payroll and that Ford had already expended $3,000,000 in the project.

The Philippine Islands which for some time have been known to be well adapted to the cultivation of crude rubber have recently become of particular interest to the Goodyear company. The land laws of the Philippine government

American Plantation Holdings*

United States Rubber Plantations, Inc., owned by the General Rubber Company, a direct subsidiary of the United States Rubber Company. Estates in Sumatra and British Malaya totaling 135,160 acres (Sumatra 104,232; British Malaya 30,928 acres).

Goodyear Rubber Plantations Company, owned by the Goodyear Tire and Rubber Company. Estates in Simeleongoen and Karolanden provinces, East Coast of Sumatra totaling 80,000 acres and in Cotabato province, Mindanao, Philippine Islands totaling 2,500 acres.

Hawaiian Sumatra Plantations, Ltd., (Pacific Trust Company, Honolulu, agents., E. C. Waterhouse, president) owning 12,4.5 acres comprising two estates in Sumatra.

Continental Plantation Company, owned by Intercontinental Rubber Company, owning 22,295 acres on the East Coast of Sumatra.

Pahang Rubber Company, Ltd., (Pacific Trust Company, Honolulu, agents), owning one estate of 2,858 acres in Pahang, F. M. S.

Manhattan Rubber Manufacturing Company, owning six estates in Java, totaling 1,803 acres.

American Rubber Company, (California capital, Dr. J. W. Strong, manager) has 2,338 acres located at Basilan Island, Philippines.

Zamboanga Development Company, owning 510 acres, under lease at present to the American Rubber Company, located on Basilan Island, Philippines.

Tanjong Olak Rubber Plantations, Ltd., (Pacific Trust Company, Honolulu, agents), located on Muar River, Johore, owning 2,595 acres and is under the same management as the Pahang Rubber Company.

Selama-Dindings Plantations, Ltd., (Hawaiian corporation), owning two estates in Perak, F. M. S. (1,508 acres). and The Dindings, S. S. (3,073 acres).

Basilan Rubber Plantation Company, (Swiss, German and American capital), owning 2,500 acres, on Basilan Island, Philippines.

Rio Grande Rubber Estates. Ltd., located in Cotabato province, Mindanao, Philippines, owning 2,500 acres.

Firestone Plantations Company, Ltd., owned by Firestone Tire & Rubber Company, holds lease for 2,000 acres of Mount Barclay Estate and a concession for 1,000,000 additional acres in Liberia.

Ford Industrial Company of Brazil, owned by the Ford Motor Company. holds concession for approximately 3,700,000 acres on the Tapajoz River, State of Para, Brazil.

Total American Plantation Holdings, 4,974,055 acres.

*Figures given represent total property holdings. For actual acreage planted to rubber, see table on page 418.

which limit a corporation to no more than 1,024 hectares or 2,500 acres of land, however, retard any large development and consequently the laws have been one of the serious causes in preventing American capital from going into the islands on a large scale. Pressure upon the Philippine government to abolish this objectionable feature has so far met with no success.

In spite of these objections, Goodyear is going ahead with its development of crude rubber. The company in 1928 was allotted 2,500 acres of public land in Kabasalan, Mindanao, where it plans to spend 2,000,000 pesos or $1,000,000. Work of clearing the ground and planting has been going on since June, 1928, and expenditures to date have amounted to nearly 1,000,000 pesos or $500,000. About 2,000 acres have been cleared and approximately 60 per cent of the total area is now planted with rubber trees. At present, 510 men are at work on the estate, but when the project is completed, it is expected to furnish employment for at least 800 laborers.

Interest in the Philippine project has not distracted Goodyear from its holdings in the Netherland East Indies. The plantations of Goodyear in Sumatra at present supply the second largest yield of all the American companies.

A Native Orchestra on the U. S. Rubber Company Estates

During the past year, Goodyear intensified and enlarged its Sumatran estates until the company now maintains two plantations of 40,000 acres each. The company is employing 10,000 coolies on the new project in Sumatra which embraces 10,000 acres, and will require at least $10,000,000 to bring the plantation into production.

It has been said that the plantation interests of the Goodyear company furnish approximately 10 per cent of its present total annual requirements.

The large holdings of the Continental Rubber Company in Mexico, planted to *Guayule*, are not considered in this article, which is devoted strictly to plantation production of *Hevea* rubber.

What the Present and Future Hold

The production of crude rubber from these American owned properties is still but a small and insignificant percentage of the total tonnage consumed by the American rubber manufacturing industry, but at least it represents what can be done with American capital backing plantation projects and gives the American parent manufacturing companies a sense of security and independence for its raw materials that is satisfying and ofttimes profitable. As regards the profitableness of these plantations, one need only glance at the financial statement of the United States Rubber Company in 1927, when the actual gains from the plantation overcame and vanquished a deficit of several millions of dollars on the debit side of the balance sheets, and turned a loss on the total yearly business of the company to a substantial profit.

By 1935, the United States participation in world production will have become an important factor, for by then the extensive holdings of Firestone in Liberia and of Ford in the Amazon will be bearing in appreciable quantities. Moreover, the plantations which are producing today are being extended each year, and advance methods of cultivation are producing a greater yield per acre. In addition, new American interests are constantly entering the field. Only the other day a report came from the United States consular office at Medan that an American company, name not stated, had opened a very large new estate, which will materially increase the American share in the total rubber production when its trees, all bud-grafted, come into bearing.

Exporting Rubber Bands and Erasers

PERHAPS nothing has been more phenomenal in the United States exports of rubber goods than our trade in rubber bands and erasers according to the U. S. Department of Commerce. In 1926, the first year in which they were separately enumerated in the United States official statistics, exports amounted to a mere 3,647 pounds, valued at $2,288. In 1929 they had increased many fold—to 1,067,345 pounds, valued at $628,210.

The United States practically supplies the world. In every country where stationery rubber goods are sold the United States leads its nearest competitors—Germany, Japan and the United Kingdom—by wide margin. In 1929 the United States sent rubber bands and erasers to 77 markets. Even in such minor consuming countries as the French islands of Miquelon and St. Pierre, off the coast of Canada, Iceland, Ceylon, Iraq, Tahiti, and Mozambique, United States exporters are finding outlets for their products.

The United Kingdom, always our best market for rubber specialties, sundries, and the like, is naturally our best customer for rubber bands and erasers. The trade, however, has been declining precipitately since 1927, owing to the increased competition of the domestic manufacturers. Many British concerns produce stationery rubber goods, but it is known that North British Rubber Co., of Edinburgh, and Victory Rubber Co., of Leith, are the important manufacturers.

Of the local consumption, American manufacturers at present are believed to supply slightly less than one-half, British manufacturers furnishing most of the remainder.

A short time ago German-made rubber erasers and specialties were sold in the United States. Now the American industry is supplying the German market in increasing quantities.

Rubber bands are also manufactured in Japan in large quantities. In consequence, the United States exports of bands have dwindled until in 1929 they were valued at slightly more than $1,000.

Value of United States Exports of Stationery Rubber Goods to Principal Markets

Country of destination	Rubber bands and erasers		Bands,	Erasers,
	1927	1928	1929	1929
United Kingdom	$124,338	$106,405	$69,480	$33,708
Germany	28,801	32,661	8,745	51,148
Mexico	66,746	68,148	41,470	10,234
Canada	43,126	34,895	8,476	27,855
Argentina	43,769	35,288	7,393	25,690
Denmark	27,655	23,948	8,515	19,202
Philippine Islands	24,598	22,781	22,058	2,765
China	22,812	12,805	3,691	16,619
Hong Kong	28,263	2,177	8,063	1,846
Japan	25,376	28,302	1,250	25,633
Australia	23,314	21,041	6,164	11,784
Other Countries	180,616	214,045	72,786	143,635
Total	$639,414	$602,496	$258,091	$370,119

And Now We Have
MINIATURE BALLOON TIRES
for Children's Toy Vehicles

Federal Rubber Company Finds Growing Demand for Their New "Juvenile" Tires —Made in 12.75 x 2.50 Size to Take 25 lbs. Air Pressure

THE latest introduction in the Federal line of balloon tires is the small size designed to give riding comfort and modern appearance to toy automobiles and other children's vehicles.

The introduction of the small balloons marks a transition from the stage of using solid tires on perambulators, go-carts and the young son's model of his dad's car.

A statement by Harry G. Ross, manager of the bicycle tire department of the Federal Rubber Company, advises that the new type casing has been on the market for only a few months. Mr. Ross stated that the factory was running at full capacity on manufacturing the small sized tires and that there is a constantly increasing demand for this type of equipment, from manufacturers of baby carriages and toy-sized automobiles.

The new tire is known as the Federal "Juvenile" balloon tire. It is manufactured in three colors, black, red and grey, and carries an exact replica of the tread on the well-known Federal "Traffik" tire. At the present time the tires are being made in one size only, 12.75x2.50, although it is expected that moulds will be prepared for various other sizes in the near future as the demand for this type of casing increases.

Federal Rubber Company's New "Juvenile" Balloon Tire

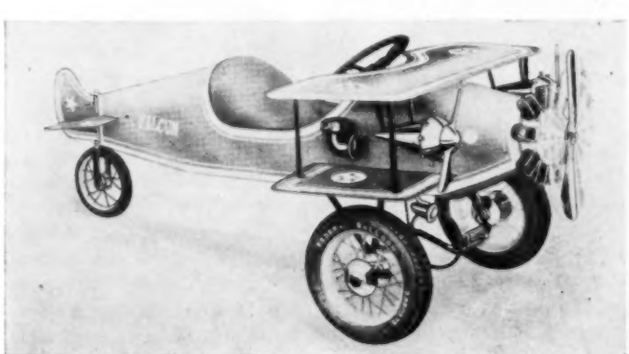
It is one-piece inseparable ply fabric construction with heavy non-skid auto tread. No inner tube is used, the air valve being attached directly to the tire as in the old manner of bicycle tires. They are inflated to 25 pounds pressure. The tires carry the standard Federal auto tire guarantee covering defective material and workmanship.

It is only to be expected that in this day of modern demands for riding comfort, that need should arise for adoption of new design for the rolling equipment of juvenile vehicles. We demand balloon tires for automobiles in order that shocks and jolts may be absorbed. We cater to our own comfort by buying tires with large sized air chambers. Why should we not consider the comfort of the young child in his small vehicle.

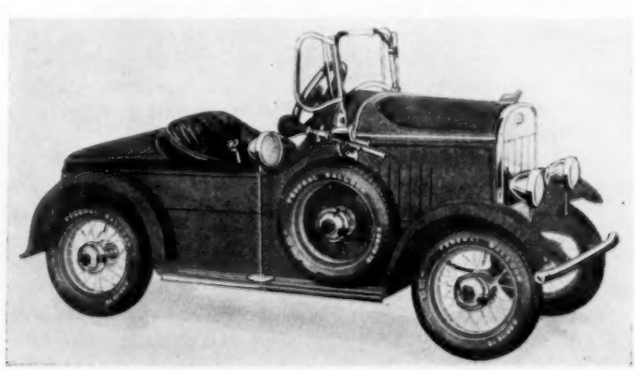
The same is true in our demand for appearance. Balloon tires enhance the appearance of the automobile. They tie in with the stream-line effects in motor car design today. In the same manner, balloon tires on juvenile automobiles will carry out the line of a modern car and increase the beauty of the appearance. Models in children's vehicles change almost as quickly as models in automobiles and the type of vehicle that the manufacturers are building today demands a large size pneumatic tire to carry out the design that will create the most appeal.

These newer types of children's vehicles, especially the automobile models, are being built in such large sizes as to be actual counterparts of real automobiles, even to having a small motor for propelling power. The Toledo Metal Wheel Company is putting out a miniature Lincoln, built on an all-steel chassis 70 inches long with electric lights and horn. Six tires are supplied as original equipment including two spares attached to the sides of the car. The American National Company are also producing a similar line of large vehicles, and a number of other companies are entering the field.

Although the manufacture of juvenile balloon tires is



"Falcon" Model Airplane Manufactured by the Toledo Metal Wheel Company. 64 Inches Long



"Cadillac" Model Automobile of the American National Company's Line. 59 Inches Long.

in its early stages, officials of the Federal Rubber Company believe, from the increasing demand for their product, that the manufacture of this type tire will grow to be an important consideration in their production. Federal "Juvenile" tires are being produced today in quantities for the American National Company, and the Toledo Wheel Company. The field for this type of tire is rapidly increasing and it is expected, before long, that the present type of solid tires on juvenile equipment will be as obsolete as high pressure type automobile tires.

U. S. Rubber Flooring Institute

IN ITS laboratory investigations, which have been carried on for the purpose of furnishing scientific data to architects and builders on the subject of rubber flooring, the Rubber Flooring Institute of the United States Rubber Company at Providence, R. I., has brought to light the fact that very little information of a truly scientific nature has ever been assembled with regard to floor coverings treated as one of the elements of the general decorative scheme of a room.

A survey by A. G. McKinnon, Director of the Institute, disclosed that floors have not come in for much real study. In the New York Public Library only four volumes have been found that throw any light on the subject of what constitutes proper flooring.

While the studies carried on by the Institute have centered around rubber flooring, they have by their very nature included a consideration of the effects of light, color, and design, which are subjects of primary importance no matter what flooring material is used. Practically all flooring studies made before the establishment of the Institute seem to have given little attention to the part the flooring material was to play in a room ensemble, and to whether the floor should play a prominent or inconspicuous part in the decorative plan.

Reception Hall of the United States Rubber Flooring Institution

The problems of colors, color combinations and design are vital, especially where the flooring is to stay in place for years, and where a mistake at the start means that a glaring monstrosity will keep hitting the public in the eye daily for a score of years. It is at this point that the architect who is not sure that his taste is in accurate accordance with artistic standards will seek for guidance rather than trust his own eye. Even ordinary color charts, showing contrasts and harmonies, are to be distrusted to a degree, for the Rubber Flooring Institute has learned through collaboration with the Department of Psychology at Columbia University that black against white is an altogether different black than the same black placed alongside green or yellow. This psychological factor must be taken into consideration in the preparation of charts.

The conclusion reached by the Institute tend to uphold the theory that laying a permanent flooring contains so many factors that may make or mar the appearance of a beautiful room or corridor that hit-or-miss methods of selection are not to be tolerated.

To its special problem — rubber flooring — the Institute has given microscopic attention. Its studies have covered every detail from the laying of floors to keeping them in condition. Standard tests have been developed for quality of materials, for measuring the effects of sunlight, and for gauging the proper sizes of tile for various room sizes, and elaborate color charts have been prepared to guide in the selection of appropriate and harmonious colors.

In the demonstration room of the Institute, facilities have been provided for bringing out the effect obtainable under varying conditions of color, light and design. The laboratories meanwhile are engaged in solving the practical problems that arise in the development of a correct technique. Many architects and contractors have already visited the Institute.

Colwyn Gold Medal

CONDITIONS of the competition for the annual gold medal founded by Lord Colwyn have been announced by the Council of the Institution of the Rubber Industry, who will make the award.

It will be awarded for the year 1930 for the essay, which, in the opinion of the Council of the Institution of the Rubber Industry, is considered the best, and which is submitted by a member of the Rubber Industry, of British nationality, but not necessarily a member of the Institution of the Rubber Industry. There is no restriction as to age.

The subject of the essay will be "The Advantages, Disadvantages and Possibilities of Rubber as a Constructional Material for Transport Purposes Generally." The length of the essay should not exceed 5,000 words and must be accompanied by a brief summary not exceeding 200 words.

The essay must be submitted under a nom de plume, the actual name and address of the author being enclosed in a sealed envelope addressed to the Secretary of the Institution of the Rubber Industry. The identity of each author will be treated as strictly private and confidential until the permission of the author can be obtained to publish his or her name.

No essay in connection with the 1930 award of the medal will be considered unless it reaches the *offices of the Institution of the Rubber Industry, Faraday House,* 10, *Charing Cross Road, London, W. C., not later than* 1*st October,* 1930. Essays sent from overseas may, however, be received up to 21st October, 1930.

Rubber Mats on Railway Trains

THE new crack train of the Union Pacific Railroad, "The Columbine," illustrates a new application of rubber flooring as applied to railway cars. The train is equipped with 2,500 feet of Usco sheet rubber tiling, all furnished by the United States Rubber Company. Eleven special mats, very unusual in design, were made especially for the train. The company has never before turned out anything so elaborate in shape or color. The mats are for use in the sun-room lounge car.

GERMAN *Rubber Industry and Trade Make Great Strides*

Exports During 1929 Exceeded Pre-War Year 1913 for the First Time—Foreign Capital Increasing Their Efforts Through Expansion of Factories and Selling Activities—Centralization Movement Within Local Industry

GERMANY during 1929 made another rapid advance in its rubber-goods trade, when the value of exports exceeded imports at a larger figure than at any time since the World War—namely, by $21,765,197, according to reports of the U. S. Department of Commerce. But the most outstanding feature of the year's trade was that, for the first time since the war, the value of exports surpassed that of the pre-war year 1913 by more than $1,224,700.

German exports of rubber goods for 1929 were valued at $31,287,054—an increase of 14 per cent as compared with 1928. Although not a very disturbing factor in the trade of the nation, German imports of rubber goods, instead of decreasing each year, are slightly increasing. Imports for 1929 advanced nearly 2 per cent from those of the previous year, while the value reached $9,521,857.

Both Imports and Exports Increased

In general, fairly large increases occurred in the value of exports of all classes of rubber goods—the most notable gain being automotive rubber goods. Imports of automotive rubber goods and mechanical rubber goods both showed slight value declines, while those of the miscellaneous and footwear classes registered increases. Rubber footwear imports especially showed a large advance, being more than 400 per cent.

German Trade in Rubber Goods

Year	Imports	Exports	Surplus of exports
1913	$6,156,279	$30,062,269	$23,905,990
1925	3,196,550	22,725,906	19,529,356
1926	4,488,918	23,543,198	19,054,280
1927	9,106,733	24,500,837	15,394,104
1928	9,369,345	27,422,059	18,052,714
1929	9,521,857	31,287,054	21,765,197

Germany has therefore recovered fully the losses which the rubber industry sustained as a result of the World War, and the country now ranks as the fourth leading exporter of rubber goods among the nations. Although the position Germany maintained as a tire exporter before the conflict has not yet been regained, the country has forged ahead as an important exporter of druggists' sundries and other specialties of both hard and soft rubber. Comparisons in this class are rather difficult to make, owing to lack of adequate statistics from most countries, but it is now probable that Germany is the foremost exporter in this class of rubber goods.

Many changes were apparent in the German rubber industry during 1929. The centralization movement, which became noticeable in 1927, was more intensified—especially around the Continental Caoutchouc & Gutta Percha Company, of Hanover, the largest rubber concern in Germany. In addition to acquiring interest in the Hannoversche Gummiwerke Excelsior A. G., the Continental Company in the spring of 1929 secured a certain interest in Peters' Union, another of the important tire factories of Germany. The various establishments have recently undergone a complete overhauling; in many instances modern machinery has been installed and antiquated methods have been superseded by the latest procedure of present-day business. This improvement was particularly seen in the Continental company, which not only made great strides in production methods, but in the volume of output, in the quality of its products, and in turnover.

More Foreign Firms Enter Market

In addition to the centralization of the German rubber interest, foreign capital has become interested to a greater extent than heretofore. The Dunlop Rubber Company, Ltd., of Great Britain, has maintained a factory at Hanau-on-Main since 1893, and until the first few months of 1929 about 25 per cent of the shares of the Continental company was controlled by a prominent American rubber corporation. But during the past year other interests have made investments in the German rubber industry.

The Englebert Company, of Belgium, purchased during 1929 a factory at Aix-la-Chapelle and is now well entrenched upon the German market. The Michelin Company, of France, which inaugurated an expansion policy during 1929, advertised for factory sites in the neighborhood of Mainz or Worms, where it contemplated the erection of a factory to employ some 3,000 workers. The latest report is that Michelin has actually purchased a factory site of 140,000 square meters in Karlsruhe and will begin erecting a factory in that city before the end of the winter. An important United States tire company during the last months of 1929 made an arrangement with the Gummiwerke Fulda A. G., in order to effect technical production of tires in Germany, as well as distribution methods. Other United States rubber interests have been looking over the German market, and it is reported that more than one company has been studying the possibilities of manufacturing rubber goods in Germany.

Growing Competitor in International Trade

With the strengthening of the existing German rubber companies and the increased participation of foreign companies, it looks as if Germany should become less and less a market for imported rubber goods, and a more serious competitor in international trade. The latter is certainly true of tires and rubber sundries and specialties, but from the large increase in imports of rubber footwear for 1929, it would seem that in this field there is opportunity for further trade development—particularly if German dis-

German Trade in Rubber Products During 1929

Item	Imports		Exports	
	Quantity	Value	Quantity	Value
	Kilos	*Thousands of reichsmarks*	*Kilos*	*Thousands of reichsmarks*
Automotive rubber goods	4,409,400	22,264	6,439,100	33,497
Rubber footwear	270,400	2,615	362,300	2,488
Mechanical rubber goods	350,500	2,367	2,985,800	13,528
Misc. rubber goods.....	2,877,100	12,745	12,993,700	81,890
Total	7,907,400	39,991	22,780,900	131,403

tributors are used to supply nearby central European markets.

Tire production in Germany during 1929 is believed to have increased over the previous year by a wide margin, and the local industry is now credited with supplying the market to the extent of 75 per cent. The percentage will undoubtedly be greater during the present year.

Tire Exports 98 Per Cent of Pre War Times

The World War probably affected the tire trade of Germany more than any other branch of the rubber industry. Prior to the war the Continental tire was the most popular make on the European market, and not only rivaled the French Michelin tires but supplied 25 per cent of the French consumption. German tire exports during 1929 increased by 42 per cent in volume as compared with 1928. Although a large gain was apparent in the outgoing trade, exports have not reached the volume of 1913—being now 94 per cent of that year against 67 per cent in 1928. Imports of tires increased only 3 per cent.

Many changes occurred in the tire trade for 1929. One of the most outstanding was the remarkable increase Germany made in supplying the Netherland East Indian market—a gain of 160 per cent as compared with 1928.

Although there was a large increase in the imports of waterproof rubber footwear into Germany during 1929, exports are still in excess of imports by 91,900 kilos. Great Britain was the principal outlet, taking 123,400 kilos.

Exports of mechanical rubber goods in 1929 increased by 15 per cent in volume, as compared with 1928, whereas imports declined by 11 per cent. Exports of all items increased in volume, the most outstanding case being that of rubber hose. Germany is second to the United States in the exportation of rubber hose, manifesting an increase of 16 per cent in volume over 1928.

It is in the exports of various miscellaneous rubber articles that Germany depends chiefly for its export trade. Exports of this class increased by 12 per cent over those in 1928, and now far exceeds the prewar trade of 1913. Germany is a large exporter of many small hard and soft rubber sundries and specialties where, in foreign markets, they are given a ready sale for their cheap prices and comparably good quality.

A Model Service Station Used As An Experimental Laboratory

PROBABLY the only service station in the world that will never see an automobile or sell a gallon of gasoline is owned by the tire department of the United States Rubber Company. This station is on the ninth floor of the executive office building in the Detroit plant where all "U. S." tires are made.

The station was planned and erected as a model for "U. S." tire dealers and also to serve as a practical laboratory for the designing and working out of merchandising ideas such as window displays, dealer helps, merchandise displays, stock control methods, etc.

The merchandising men of the sales and advertising executive staff are constantly using this model station to test out various forms of advertising material. Experiments are made in actual working surroundings and thus this life-size station is really a proving ground of great merchandising value.

While restricted space has made impractical the inclusion of cumbersome machinery such as power hoists in the wash rack, and the like, the station is complete in its general layout and equipment from the viewpoint of operating efficiency. It is believed to be the only one of its kind in existence.

Model Service Station in the Executive Offices of the U. S. Rubber Company at Detroit

The station itself covers nearly 2,000 square feet of floor space. It is designed to meet the needs of the average dealer, and all equipment shown is practical and absolutely essential for the proper operation of a high-grade super service station.

7,000,000 Acres of Rubber Now Planted

THE total area now planted to rubber throughout the world is approximately 7,000,000 acres, according to E. G. Holt, formerly of the United States Bureau of Foreign and Domestic Commerce, and now manager of foreign and crude rubber research, Goodyear Tire & Rubber Company.

"If this area," Mr. Holt pointed out, "were stretched in an even band around the earth's surface at the equator it would be nearly half a mile wide. This figure perhaps emphasizes too much the size of the planted area.

"In order to bring the industry back into a compact unit it might be said that the total world production of rubber last year, 860,000 tons, if made into a single solid rubber ball would be less than 600 feet through the middle.

"But it is more impressive to say that during last year less than 70 per cent of the planted area was old enough to be tapped, and that if the same average proudction per acre should obtain six years hence as in 1929 the production of the present planted area, if it were all tapped, would amount to well over 1,200,000 tons in 1935. The average per acre yield of plantations in every country has been increasing in recent years."

LOOKING FOR A JOB? . . . There are a number of good positions open in rubber factories. Consult Classified Section, this issue, Page 435.

Atmospheric Water Cooling of Rubber Mills*

By HUGH R. LAMBERTH
The Fluor Corporation, Ltd.

PRACTICALLY every manufacturing process involves heat transfer in some phase and requires a free circulation of cool water to conduct heat away from the process. For safe or economical operation of a given part such as, a bearing, furnace wall, engine jacket or condenser the outlet cooling water must not exceed a certain predetermined maximum temperature. Unless the water so heated is cooled it cannot be re-circulated but must be wasted. Water requirements vary from 2 or 3 gallons per minute for small refrigerating units for instance, to several hundred thousand gallons per minute for large central station steam condensing service.

The principle of cooling water by evaporation has been utilized since ancient times. The development of water cooling devices has, however, made rapid strides in recent years. Scientific research coupled with practical experience has resulted in a clear conception of the basic theory and developed its application to a fine point.

To properly discuss water cooling, it is first necessary to understand the meteorological factors directly affecting design and performance of such devices.

(1) The dry bulb temperature is the temperature of the atmosphere as registered by an ordinary thermometer.

(2) The wet bulb temperature is the temperature which an ordinary thermometer would register if its bulb were kept moist and it were passed through the air at a sufficient rate to provide rapid evaporation from the surface of the bulb. It is the temperature at which the outflow of latent heat caused by evaporation of moisture is exactly balanced by the inflow of sensible heat from the air. This temperature is usually above the dew point and should be carefully differentiated from it.

(3) The dew point is the temperature at which the water vapor in the air is completely saturated. The dew point and the wet bulb temperature are identical only when the water vapor in the air is completely saturated.

(4) Relative humidity is the ratio between the amount of moisture per unit space actually present in the air and the amount which would be present if the air were completely saturated.

While the dew point is usually neglected in such calculations it is well to define it to prevent confusion.

Water exerts a definite vapor pressure at all temperatures, the vapor pressure being a direct function of the temperature. Vaporization of water exposed to air occurs at all temperatures. As the relative humidity seldom exceeds 70%, except for short periods in particularly humid localities, the cooling effect due to vaporization represents 80% to 90% of the total cooling accomplished.

It is readily apparent that the wet bulb temperature is the lower limit to which water may be cooled atmospherically. Water entering a tower above the dry bulb temperature is cooled by both sensible and latent heat transfer from water to air; on reaching the dry bulb temperature, evaporation continues to cool the water, but the direction of sensible heat transfer is reversed and is now from air to water; at the wet bulb temperature the latent heat transfer from water to air and the sensible heat transfer from air to water exactly balance and equilibrium exists.

Below are given a few examples of the relationships stated above with a dry bulb temperature of 90°F.

Dry Bulb	*Wet Bulb*	*Dew Point*	*R. H.*	*Water Vapor in Lbs. Per 1000F³ Mixture*
90°F	90°F	90°F	100%	2.131
90	85	83.6	82	1.747
90	80	76.4	65	1.385
90	75	68.7	50	1.066
90	70	59.8	37	0.788
90	65	49.4	25	.533

*Paper presented before the Los Angeles Group, Rubber Division, A. C. S., April 25, 1930.

From this balanced condition at the wet bulb temperature it is possible to establish a definite relationship between the latent heat transfer rate and the sensible heat transfer rate. The ratio of these two transfer rates is practically constant throughout the range of psychometric conditions.

With this relationship as a basis, formulae have been developed which gives readily the amount of surface required and the weight and volume of air required for any given set of conditions.

The various types of water cooling equipment used commercially may be conveniently classified, as follows:

(1) Open ponds
(2) Spray ponds
(3) Natural draft or "chimney" towers
(4) Forced draft or "fan" towers
  (a) induced draft towers
(5) Open atmospheric towers
(6) Various combinations of devices (1) to (5)

The comparative efficiencies and ranges of application of the various types will not be discussed here as it is my purpose to describe only the atmospheric type. This particular type has met with universal acceptance as the most flexible and economical installation from the standpoint of continuous operation and performance.

An atmospheric tower consists of a vertical structure open to the air with means provided for:

(1) Breaking up and distributing the hot water at the top of the tower.

(2) Allowing the water to pass downward and providing a maximum of efficient surface exposure to the air with as little loss from windage spray as possible.

The operating range of the atmospheric tower is unlimited within the bounds of atmospheric conditions. Such towers are in service cooling water from 180°F to within a few degrees of the existing wet bulb temperature in one throughput. The approach to the wet bulb may be diminished to 1°F or 2°F with *no wind velocity* if process economies to be effected thereby will warrant the increased initial investment.

As stated before, vaporization is responsible for the bulk of the cooling realized and the total amount of cooling possible from this source is fixed. Factors influencing the rate of vaporization are:

(1) Temperature of the water
(2) The degree of saturation of the atmosphere in contact with the water
(3) The density of the atmosphere
(4) The rapidity of air circulation over the evaporating surface
(5) Extent of the exposed surface of the liquid

To secure the highest rate of vaporization, hence the greatest amount of cooling in the least possible space, is the designer's purpose. The rate of air circulation in an atmospheric tower is governed by local currents, wind obstructions, and other factors, so the only controllable factor in an atmospheric tower is the surface exposure. This fact necessarily tempers the application of theory with practical knowledge gained from experience.

For maximum performance a well-designed tower will provide:

(1) Uniform distribution of water from top to bottom at all loads. If every square foot of available surface is not utilized, the tower will not reach its maximum efficiency.

(2) Ample cooling surface. This is usually accomplished by a

series of cooling decks spaced at given intervals, which break up and film the water.

(3) Sufficient air lanes. This is provided by means of louvres, which admit the air to the tower and prevent mechanically entrained water from leaving. Sufficient space should be provided between decking panels to allow air to pass freely through the deck itself.

The most effective width for a tower is about 12 feet. The efficiency per square foot of wider towers falls off rapidly at low wind velocities. A deck spacing of between 30 inches and 36 inches should be adhered to. Closer deck spacing retards windage effect and does not increase overall efficiency. Louvres should be wide to admit sufficient air, yet so designed as to practically eliminate spray loss.

Adhesion of water to the deck makes the underside of deck effective also. Unsurfaced lumber is more efficient in a deck, due to its increased filming surface. The normal path of air through the tower is across the deck, due to its velocity, and upwards, due to its increase in heat content.

The construction of a tower should provide sufficient strength to withstand a wind pressure of 30 lbs. per square foot. Material should be chosen for long life and structural adaptability. California redwood stands alone in its application to this service. All major pieces in the frame work should be bolted. Bracing should provide equal strength in compression or tension. Decking panels, louvre boards, and smaller pieces should be so fastened as to prevent warping or loosening.

The distributing system should be easily accessible, adjustable and capable of properly distributing the inlet water through at least a 50% range on either side of its rated load. The tower as a whole should be flexible and adaptable to additions in height or length. A symmetrical and pleasing appearance will result from proper design, suitable materials, and good workmanship.

In the average atmospheric tower installation the total water loss by windage and evaporation does not exceed 5% of the quantity circulated. Evaporation loss is approximately 1% for each 10°F temperature change. As the latent heat of vaporization of water under atmospheric conditions is approximately 1000 BTU per pound it follows that for each pound of water evaporated 100 pounds will be cooled 10°F or for each gallon evaporated 100 gallons will be cooled 10°F.

The spray loss in a well designed tower will not exceed 2% of the quantity circulated with a wind velocity of 5 miles per hour which is equal to 440 feet per minute. This percentage may be reduced to less than 1% at any wind velocity under 20 miles per hour by the use of adjustable separator panels. Performance under these conditions is not affected.

The effect of wind velocity may be seen from the following figures:

(1) for a given performance. An increase in wind velocity from 5 to 10 miles per hour will decrease the tower size required by 25%; while

(2) a decrease in wind velocity from 5 to 1 mile per hour will increase the tower required by 50%.

The approach of the outlet water to the wet bulb temperature will vary the size required materially; for instance, assume that a tower is designed to cool water from 90°F to 70°F with a 65°F wet bulb—the same tower will cool 20% more water from 92°F to 72°F or 60% more water from 100°F to 80°F or 25% less water from 87°F to 67°F under the same atmospheric conditions.

The average height of a great many tower installations is 35 feet. The capacity of a tower for a given performance will increase approximately 20% with each increase in height of 9 feet above 35 feet but the decrease will be more rapid for heights below 35 feet.

The normal rating of towers seems to average about 1.5 gallons per minute per square foot of ground area covered. However, the variables mentioned above will allow concentrations up to 4 gallons per square foot or as low as 0.5 gallons per square foot. With concentrations above 4 gallons per minute per square foot the water is not properly broken up and air permeation is reduced to a minimum. This figure of 4 gallons per minute per square foot is recommended as a maximum. If performance requirements will permit higher ratings, the best solution is a longer and lower tower covering more ground space.

The most elaborate atmospheric tower to meet extreme performance specifications will not cost in excess of $10.00 per gallon circulated including concrete basin, while the average tower installation with basin costs approximately $4.50 per gallon circulated.

While I have endeavored to present conditions gained from experience with over 1500 tower installations, it is not possible to solve the economics of every problem with a single method of attack. Every case must be gone into thoroughly and treated on its own merits.

Aging of Compounds Containing Rosin and the Effect of Neozone D

THE adverse effect of rosin on the aging properties of compounds that contain it is well known to all rubber chemists. Tests were recently made at the E. I. du Pont de Nemours Company laboratories to determine how effective their product Neozone D might be in offsetting this tendency of rosin to accelerate oxidation with interesting results. The detailed results of these tests are contained in a brochure put out by the company.

It was found that rosin retarded the cure of the compounds in which it was used to such an extent that the best cure was 60 minutes at 287 degrees F. The compounds which contained no rosin were correctly cured in 25 minutes at 287 degrees F. Aging tests were conducted in the air oven at 70 degrees C. and in the oxygen bomb at 70 degrees C. and under 300 pounds per square inch pressure of oxygen.

The oxygen bomb tests clearly showed that rosin accelerated oxidation and that Neozone D retarded it. The compound containing both rosin and Neozone D aged much better than the compound containing neither rosin or Neozone D but not as well as the compound that contained Neozone D but no rosin. Both of the stocks that contained no antioxidant were so badly deteriorated at the end of four days that they could not be tested.

The oven tests indicated that 1 per cent of Neozone D was sufficient to counteract the effect of 5 per cent of rosin. The oxygen bomb tests showed that 5 per cent of rosin greatly increases the tendency of this stock to oxidize and that the addition of 1 per cent of Neozone D is much more than sufficient to offset the effects of 5 per cent of rosin.

"U. S." Raincoat Sales Room

TO OFFER to the visiting buyer a display and sales room in keeping with the high class trade to which they are catering and one conveniently located in the heart of the garment merchandising district, the United States Rubber Company have opened an elaborate raincoat department in the Herald Square Building, New York City.

New Raincoat Sales Room of U. S. Rubber Co.

Among the new lines being featured is a man's lightweight raincoat of silk like material which can be rolled up and carried in a small pouch. Another featured model is made in imitation rhinoceros skin.

The display inaugurated the first entry of the United States Rubber Company into the novelty and more expensive lines of rainwear.

Sponge Paste

AN outstanding improvement in the manufacture of sponge rubber is seen in the announcement by The C. P. Hall Company, Akron, Ohio, of a new material called Sponge Paste, the purpose of which is to standardize and simplify the production of sponge rubber. In its simpliest form the manufacture of sponge rubber has heretofore been considered an art when compared with the making of other rubber products. With the use of Sponge Paste it now takes its place among other rather standardized articles.

In form Sponge Paste is an oily paste, cream white in color, weighing about 12 pounds per gallon. Its form makes for ease of handling and it disperses readily in milling, producing uniform porosity.

According to its producers the activity of Sponge Paste eliminates the prolonged milling which has always been necessary heretofore and to make possible the handling of standard sizes of batches upon larger mills and calenders. In connection with its very strong softening activity, its manufacturers have included the necessary blowing ingredients, accelerators and antioxidants. It is already being successfully used by concerns which have had long experience in the manufacture of sponge rubber as well as those who are very new to its production. It is estimated that milling costs of sponge rubber where Sponge Paste is used can be reduced from 30 to 50 per cent below the standard milling cost.

It is claimed that recent improvements in the use of this material now make it possible to produce a sponge with a volume fully 5½ times the original volume with very even porosity and remarkable strength. The aging properties of sponge produced with Sponge Paste are said to be superior to any sponge made heretofore, thus opening up many new fields for improved sponge products.

Ti-Tone

A NEW lithopone is being offered to the rubber manufacturing industry by E. I. duPont de Nemours and Company under the trade name of Ti-Tone. It is a titanium lithopone having the following approximate chemical composition: titanium dioxide 15%; zinc sulfide 25%; precipitated barium sulfate 60%. Its specific gravity is 4.25 and has a covering power 60 per cent greater than that of ordinary lithopone. The comparative rate of cure and reinforcing effect of Ti-Tone and lithopone depend to a slight extent upon the accelerator used.

Neither Ti-Tone or lithopone has an appreciable effect on the aging properties of compounds that contain it. While there is a great difference in the fastness to light of various grades of lithopone, the manufacturers claim that Ti-Tone is slightly superior in this respect to the better 'light-fast' lithopones and decidedly superior to the ordinary grades of lithopone.

Milk Can Silencer

The rattling of heavy milk cans is eliminated by a new device known as the Macinlop rubber silencer, which is now winning popularity in England. This device, the invention of a Derby grocer, is in the form of a cushion tire which protects the rim of the can from contact with the ground or with adjoining cans. Made from the toughest tire rubber, it also protects the can rim from the wear and damage received ordinarily on railroad platforms, truck floors, and pavements.

Schaphorst's CHATS *with the* ENGINEER

By W. F. SCHAPHORST, M.E.

Belting and Fluctuating Engine Flywheels

NOT long ago I was approached concerning the proper belt to use on a gasoline engine which fluctuated badly. I was told that belts on the engine lasted only one month and then broke. A new belt was put on nearly every month and the owner was getting tired of it. He wanted to know what to do. His conclusion was that all belts were no good and so he wanted to eliminate belting entirely. Every rubber worker who reads this has probably had a similar experience.

In my report I told the owner that the trouble lay entirely in the flywheel and not at all in the belt. The engine flywheel wasn't heavy enough. A correctly designed and built gasoline engine will have a flywheel of such size that there will be no violent fluctuations. The governor should be sensitive enough to function properly with the flywheel and maintain in a nearly constant speed.

The gasoline engine mentioned in this article drove an air compressor. What could be worse than that? They had about the worst possible condition there is—a fluctuating driver operating a fluctuating driven machine. The driver has a peak impulse with each explosion and the driven machine a peak load with each discharge. Every once in a while the two peaks coincide and unless the flywheels are heavy enough to take care of the energy, the belt will get an excessive pull and will slip, ruff off, or even break.

When faults of design are remedied it is invariably proven that a high quality belt of sufficient width and proper thickness will not give any trouble. Nine times out of ten the machine is at fault—not the belt. The belt must be elastic, strong, and slipless. It must have a high coefficient of friction.

Clean Boilers Pay

RUBBER officials usually like to see figures in dollars and cents on matters pertaining to manufacture. For example, I have before me a report on a plant having boiler repairs running to about $4,500 per year. They installed modern water treating apparatus and after five months' use they reported that the total saving due to the apparatus was $8,670 on a five months' run, or an annual saving of $20,880. This apparatus also saved the old boilers from being condemned by the boiler inspector. The water contains 99.6 grains of scale-forming substances per gallon.

Another concern using very unclean water sent in the following report;—

> "We have saved between $4,000 and $6,000 in water cost alone, beside the benefits which we have procured in the way of decreasing boiler cleaning costs and better operation of the boilers."

Tube cleaners, soot blowers, water softeners, deconcentrators — all such equipment for keeping boilers clean is usually highly profitable.

EDITORIAL COMMENT

Coming Out of the Doldrums

BUSINESS still seems to be in the "doldrums" with the expected revival not yet making its appearance more than faintly visible. In spite of all the efforts of government agencies and attempted business campaigns to stimulate trade general business activity in June fell to the lowest point in the recent recession, even after due allowance for seasonal influences, but we are still optimists and recent developments indicate that a firmer foundation for recovery is being established.

It is particularly hard to be optimistic as regards the rubber industry and we will have to admit a certain depressed feeling when considering the situation of crude rubber and the plantation industry but on the other hand the crude rubber consumption in the United States during the first six months of this year was the highest on record, except for the corresponding period of last year. June consumption was 20.3 per cent less than in June a year ago but 5.8 per cent above the average June consumption for the past eight years. That is something cheerful to think about, anyway.

Inventories and stocks of finished goods are low in comparison to previous months and price reductions, although to be deplored in the matter of tires, have increased consumer purchasing power. Whatever may be said about raw materials in the rubber industry, they are certainly lower and more stable in price than for many years. As so oftimes remarked—every boom period results in a slump but inversely every slump has its boom. Better times can be reasonably expected after the present seasonable summer slackness.

Sixth International Road Congress

THE Sixth International Road Congress will meet in Washington October 6 to 11 at the invitation of United States government. The meeting will be the occasion for the gathering of the leading highway engineers, administrators and economists from virtually every civilized country in the world. The State Department announces that approximately 45 nations have accepted the invitation and will send official delegations.

The meeting in Washington will mark the first time that the international conference of highway experts has been held in the Western hemisphere, previous sessions having been at Paris, Brussels, London, Seville and Milan. These congresses are under the general direction of the Permanent International Association of Road Congresses, with headquarters in Paris, of which M. LeGavrian is Secretary-General.

The rubber industry will find much of interest in the deliberations of the Congress. Good roads mean more automotive transportation which in turn means more tire consumption and an increase in the application of rubber to commercial uses all along the line.

Census of Manufacturers Again

THAT the Census of Manufactures supplies the most comprehensive and reliable statistical information available on industrial America is conceded by all. Private surveys must of necessity be of a sampling nature, because only the government is able to get complete data from every member of every industry.

Yet utility values are not necessarily insured by the completeness and accuracy of statistics—they must be also compiled in a usable manner. The Census Bureau knows that this prime requirement is incumbent upon it and are striving to fulfill it. Improvements in the tabulations are made from time to time and every suggestion from business men in this particular is carefully considered and is utilized if at all feasible.

Officials of the Census Bureau know that the tabulations are being improved and that the information gathered is being used to a greater extent every year. And with the continual increase of commercial research generally in all industries, their use will naturally continue to increase.

Recently officials of the Census Bureau conducted a symposium among the manufacturing associations in an effort to ascertain general uses of the Manufacturers Census figures. The result was most pleasing. These associations declared they used the statistics in forecasting trends and production, recording industrial progress, checking conditions in industry, comparing industries, and studying distribution.

The rubber manufacturing industry is urged to cooperate to the fullest in making the Census now under way as complete as possible. Such cooperation will revert to its own advantage.

The RUBBER AGE

Published on the 10th and 25th of each month. The Only Twice-a-Month Rubber Publication.

THE PALMERTON PUBLISHING CO., INC.

Editorial Office, 250 West 57th St., New York City

Telephones: Columbus 2923, 2924

THE RUBBER AGE is published on the 10th and 25th of each month by The Palmerton Publishing Co., Inc., a New York corporation. P. L. Palmerton, President; Earl D. Osborn, Vice-President and Secretary; Peter P. Pinto, Treasurer. Publication Office, 1-3 Peace St., New Brunswick, N. J. Subscription rates: Domestic, $2.00 a year; Canada, $2.50; foreign, $3.00; single copies, up to 3 months old, 20c.; over 3 months old, 50c. Advertising rates on application.

Contents Copyrighted 1930 by The Palmerton Publishing Co., Inc.

General Manager.....PETER P. PINTO
Managing Editor.....J. P. BUSHNELL
Assistant Editor.....T. H. DAVISON
Circulation Manager.....A. M. SMITH

Representatives in all the rubber centers of the United States, Canada, England, France, Germany and the Middle East.

The Rubber Industry's CURRENT NEWS

Financial—Personals—New Rubber Products—
Building Operations—Manufacturing—Exports

GOODYEAR COOPERATES IN NEW WORTHINGTON DRIVE

The Goodyear Tire & Rubber Company and the Worthington Pump & Machinery Corporation have developed a new type of power transmission drive to be known as Worthington Multi-V-Drive. Goodyear designed and will manufacture the special endless V-shaped rubberized cord belts for the drive, while Worthington designed and will manufacture the sheaves and sell the complete drive, adapting it to each installation requirement.

The Multi-V-Drive consists essentially of a number of V-shaped rubberized cord belts running over pulleys or sheaves constructed with corresponding V-shaped grooves. The wedging action of the belts in the pulley grooves provides a grip which, it is claimed, transmits power at closer to 100% efficiency than any other type of belt transmission.

FIRESTONE PLANT MAKES AKRON SAFETY RECORD

Announcement was made on July 9 that the Firestone Tire & Rubber Company showed the most improvement in accident prevention among its employes during the first six months of 1930 of any Akron rubber company. The report showed lost time accidents reduced 59.5 per cent over the first six months of 1929; accidents involving more than seven days' lost time reduced 53.7 per cent; and accidents involving actual days lost reduced 42 per cent.

Dr. C. L. Hungerford, director of hygiene and safety, made the announcement at three safety meetings held on July 9 for employes at the Firestone clubhouse. Details were also announced of a contest in accident prevention for the last six months of 1930 between Plants No. 1 and No. 2 and the Xylos plant. The winning group will receive a prize in the form of a plaque.

Century Tire Plant Auction

The factory, real estate, equipment and business of the Century Tire & Rubber Company, Cicero, Ill., were scheduled to be sold at public auction in that city on July 15. The company went into receivership earlier this year, and the sale was ordered by the United States District Court.

LOOKING FOR A JOB?
There are a number of good positions open in rubber factories. Consult Classified Section, this issue, Page 435.

New U. S. Rubber Factory

The new five-story and basement factory of the United States Rubber Company, now nearly completed at Passaic, N. J. When finished, it will be the world's largest plant devoted to the manufacture of mechanical rubber goods.

CARBON BLACK CONCERNS ORGANIZE EXPORT GROUP

Papers were filed with the Federal Trade Commission on July 11 under the Webb-Pomerene Export Trade Act by the Carbon Black Export Association, New York City, for the export of carbon black. Announcement of the formation of the association as a Delaware corporation was first made last November, its purpose being to promote the rapidly growing interests of American carbon black manufacturers in foreign markets.

Members of the Carbon Black Export Association, the papers filed with the commission show, are the United Carbon Company, Charleston, W. Va.; Binney & Smith Company, New York City; J. M. Huber, Inc., New York City; R. W. Greeff & Company, Inc., New York City; Godfrey L. Cabot, Inc., Boston, Mass.; and the Palmer Gas Products Corporation, Chicago, Ill.

The Export Trade Act grants exemption from the anti-trust laws to an association entered into and solely engaged in export trade, with the provision that there be no restraint of trade within the United States, or restraint of the export trade of any domestic competitor, and with the further prohibition of any agreement, understanding, conspiracy or act which shall enhance or depress prices or substantially lessen competition within the United States or otherwise restrain trade therein.

U. S. RUBBER WILL CLOSE PLANT AT MILLVILLE, MASS.

Announcement was made earlier this month that the Millville, Mass., plant of the Woonsocket Rubber Company, footwear division of the United States Rubber Company, would close permanently not later than October 1. Consolidation of operations was given as the reason for discontinuing the factory.

The plant has been operating 40 years and under normal conditions employs 450 persons. It was temporarily closed on July 12 for the annual vacation period, but will reopen August 4 with a curtailed force for the purpose of running out stock.

FORECLOSURE ASKED ON NORTHERN RUBBER FIRM

Suit to foreclose on the properties of the Northern Rubber Co., Barberton, which recently went into a receivership was filed in Common Pleas Court, July 2, by the Ohio State Bank & Trust Co.

Failure of the rubber company to straighten out the firm's affairs in the 30-day receivership period and default of a trust agreement with the bank which holds a trust deed given to secure a $150,000 bond issue, is charged in the petition.

The trust deed was accepted by the bank last year after $41,600 of the bonds had been sold. The petition claims the company is insolvent and that neither interest on bonds nor taxes on the property have been paid.

The bank asks that the property be sold and amounts owing on bonds and due under the trust deed be paid.

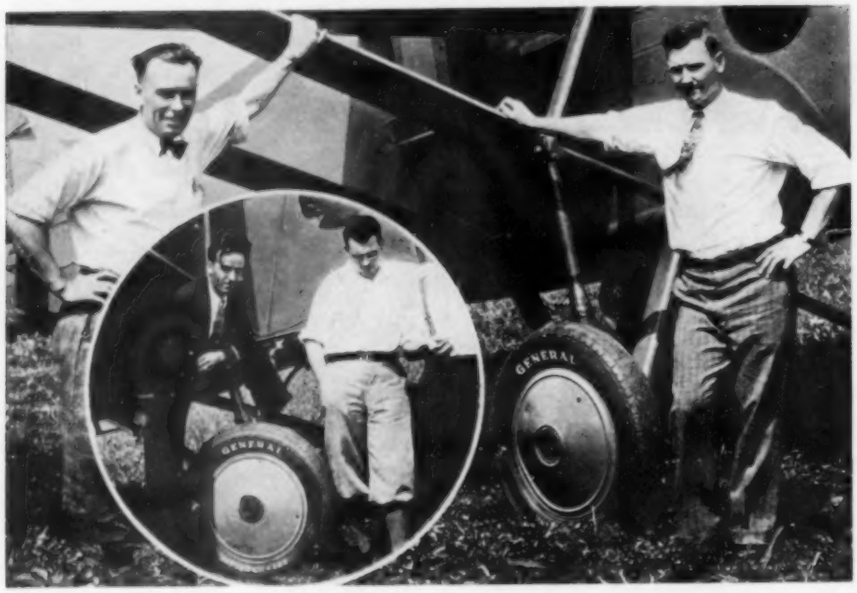
Pocono Rubber Cloth Busy

During the past few weeks, new employees have been added to the force of the Pocono Rubber Cloth Company, Trenton, N. J., and that firm is working steadily five and a half days a week. According to officials, each month of the year has marked an important gain over the preceding month, and business for the company is definitely on the uptrend.

Option on National Tire Plant

C. E. Siegfried of Akron has obtained an option on the real estate, buildings, chattles, patents and inventions of the National Tire & Rubber Company at East Palestine, O., at $45,000. The option will expire at noon, August 3.

Endurance Flyers Used General Tires



WHEN the Hunter brothers set a new world record for a refueling endurance flight above Chicago Airport this month by staying in the air more than 23 days, they used tires manufactured by the General Tire & Rubber Company on both their endurance plane and their refueling plane. The casings on the latter plane were severely tested in the course of more than 200 take-offs, refueling contacts and landings.

In the larger picture above, John Hunter, co-pilot of the record plane, is shown at the left, with one of his mechanics at the right. In the circle, Wilson T. Herren, backer of the flight, is shown at the right, standing by the refueling plane.

MISSOURI LAW IS UPHELD ON TIRE SERIAL NUMBERS

The Missouri Supreme Court in a decision last month upheld the state law of 1921 making it unlawful to sell or to offer for sale automobile tires from which the manufacturer's serial number has been removed. The court in holding the law constitutional dismissed a test suit brought from St. Louis when the Star Square Auto Supply Company obtained an injunction in circuit court following the seizure by St. Louis police on May 21, 1926, of 58 tires from which the serial numbers had been obliterated. The law empowers the police to confiscate all tires not bearing numbers.

The automobile company contended that the tire law was unconstitutional because the bill as passed by the legislature had a defective title and the measure extended an arbitrary use of the State police power. The Supreme Court held that the law was "a reasonable and legitimate exercise of the police power of the state" and reversed the action of the lower court in granting a temporary injunction against the police, and said that the automobile company suit had no equity.

Canton Rubber Will Expand

The Canton Rubber Company, Canton, O., will shortly erect a factory addition, costing $3,000, at 619 Walnut Avenue in that city. E. J. Lander & Sons, of Canton, are the contractors.

Leander B. Abbott

Leander B. Abbott, regional sales representative of the United States Rubber Company at Syracuse, N. Y., died recently at St. Luke's Hospital in that city. He was 49 years of age.

N. Y. Plant Employment Lower

The number of workers employed by the factories of New York State was nearly 2 per cent less in June than in May, according to a statement by Industrial Commissioner Frances Perkins. Employment in rubber factories in the entire state dropped 2.2 per cent in that period, while the decline in plants located in New York City alone was equal to 3.3 per cent.

Seiberling to Stay Open

The Seiberling Rubber Company has announced through its president, F. A. Seiberling, that there will be no shutdown of its Barberton factory even for the temporary respite usually devoted to the taking of inventory. "We're going right along and things are going to be better," Mr. Seiberling declared. "We've all got to be patient and as cheerful as possible."

General Tire Common Dividend

The General Tire & Rubber Company directors have declared a quarterly dividend of $1 a share on the company's outstanding common stock. The dividend will be paid July 31 to stockholders of record at the close of business on July 21.

DAYTON RUBBER WINNER IN V-BELT PATENT SUIT

Permanent injunction and substantial recovery have been granted the Dayton Rubber Manufacturing Company, Dayton, O., by the federal court at Columbus, O., in a decision on July 7 in its action against the Dorman Automotive Parts Company, of Columbus and Cincinnati, alleging infringement of patent rights on V-shaped transmission belts.

The basis of the suit was the patent held by the Dayton concern on V-shaped belts, used on approximately 90 per cent of automobiles manufactured in this country. A perpetual injunction was issued against the Dorman firm, coincident with the court decree, forbidding that company to manufacture, sell or distribute any of the products, patents on which were held infringed. Accounting for all sales made by the company during the past two years, during which time the case has been pending in federal court, is provided for under a provision of the court ruling.

John A. MacMillan, president of the Dayton Rubber Manufacturing Company, stated that the decision is a complete victory for his concern. In addition to manufacturing fan belts for autos, the firm is also making the V-shaped belt for use in refrigerators and various other electrical household appliances, and only recently extended its products to machine shops, where the V-shaped belt is claimed to be gradually replacing the fabric and leather belts.

Toulmin & Toulmin, Dayton patent attorneys, represented the rubber company in the court action.

Rubber Stocks Rise from Lows

Stocks of rubber companies gained during the fortnight, rising from a fraction in some cases to 10 points in the case of Goodyear common. Firestone common was the only stock to establish a new low during the fortnight, but that issue has rallied with the rest. Closing prices on July 17, compared with the close on July 3 and with the year's high and low, follow:

	Last Price		—1930—	
	July 17	July 3	High	Low
Aetna	—	5	8½	5
Ajax	1½	1⅛	2½	1
Amer. Hard Rubber	—	—	81	60½
Dayton "A"	—	—	3⅛	3¾
Falls	—	—	4¾	3
Faultless	—	—	37	33⅜
Firestone	—	20½	33⅛	19⅜
do. 6% pfd.	73	72½	87⅞	69⅞
Fisk	2⅝	2½	5½	2⅜
do. 1st pfd.	7¼	7⅝	21	6½
General	—	—	163	135
do. pfd.	—	—	91	88
Goodrich	28⅞	25	58½	22½
do. pfd.	81⅞	80	104½	78
Goodyear	67	57	96⅞	54⅞
do. 1st pfd.	—	93⅛	102	90
India	—	—	25½	8½
Intercontinental	—	4	7½	3⅜
Kelly Springfield	4	3¾	6¼	3
do. 6% pfd.	35	35	39	29
Lee	5⅞	5	11	4⅝
Mohawk	10	—	16¾	8
do. pfd.	—	—	55	15
Norwalk	—	1⅝	4	⅞
Pirelli	—	41	50⅞	39¾
Raybestos-Manhattan	34⅜	29⅝	58⅞	28
Seiberling	7	6⅞	18½	5½
do. pfd.	—	—	78	40
U. S. Rubber	24⅛	21½	35	20
do. pfd.	—	42⅛	63⅞	41¼

Names in the News

JOHN M. DAWSON has been appointed chief chemist of the Rubber Division of Jenkins Brothers, Elizabeth, N. J. Until recently he had been in charge of the laboratory of the Vulcan Proofing Company and C. Kenyon Company, Brooklyn, N. Y.

HERBERT W. MAXSON, organizer and general manager of Air Services, Inc., Akron, O., has resigned to become manager of a newly created department of public relations and aeronautic promotion at the B. F. Goodrich Company. He was formerly associated with the publicity department of the Goodyear Tire & Rubber Company.

THOMAS LANE has been advanced from treasurer to first vice-president of the United Tire Stores Corporation of America, and LOUIS A. BROWN has been elected secretary-treasurer. The board of directors has been reduced from ten to seven members and the executive committee of the board from five to three members. It is announced that the corporation will participate in the annual convention of the National Tire Dealers' Association in Chicago in November and that distribution of Mercury tires and tubes, sponsored by the corporation, has now reached national proportions.

LARRY GUINTHER, of the aeronautic sales department of the Goodyear Tire & Rubber Company, executed three solo flights on July 13 after only an hour and half of instruction in take-offs and landings by C. C. Bell, pilot of the Goodyear Fokker.

DR. L. F. NICKELL, assistant vice-president of the Monsanto Chemical Works and manager of the plant at Monsanto, Ill., has been elected chairman of the board of the Graesser Monsanto Chemical Company, Ltd., the British subsidiary of the St. Louis firm. Dr. Nickell, former assistant professor of chemistry at Washington University, St. Louis, has been connected with the Monsanto Chemical Works since 1917. He will sail for London on August 8.

SIDNEY J. WEINBERG, recently elected a director of the B. F. Goodrich Company, has been chosen as a director of Sears, Roebuck & Company, Chicago mail order house, in place of WADDILL CATCHINGS, who resigned his post. Mr. Weinberg is associated with the New York banking house of Goldman, Sachs & Company.

ELLWOOD B. SPEAR has recently joined the staff of the Vultex Chemical Company, Cambridge, Mass., where he is production manager and director of research.

G. LEE CAMP, who resigned last October as sales manager of the Dow Chemical Company, and who has just returned from a trip around the world, has resumed his association with the chemical industry as assistant to EDGAR M. QUEENY, president of the Monsanto Chemical Works, St. Louis, Mo. He has been connected with the Dow Chemical Company for 29 years.

WILLAM S. BROCK, round-the-world flyer and member of the Schlee-Brock firm of Detroit, middle western Lockheed plane dealers, visited Akron on July 14 to confer with officials of the General Tire & Rubber Company. He flew to Akron in the plane with which he and Schlee recently set a new coast to coast and return record.

C. T. MORLEDGE, who has been associated with the India Tire & Rubber Company, Akron, O., for the past four years, has been appointed sales manager of the organization, according to a recent announcement by W. G. KLAUSS, president. He succeeds F. L. RYAN, who resigned eight months ago to become a tire dealer and take over the distribution of India tires at Los Angeles, Cal. Since that time, Mr. Morledge has been directing India sales in the capacity of assistant sales manager. He has traveled over a great part of the United States and is well known throughout the tire trade.

C. T. MORLEDGE

P. W. LITCHFIELD, president of the Goodyear Tire & Rubber Company, has donated $30,000 to the Goodyear Relief Association in commemoration of his 30th anniversary with the Goodyear organization in Akron. The money will be used for relief work among the needy employees of the organization during the next five years. Mr. Litchfield specifying that it shall be used for those cases for which other funds are not available and which are the most worthy in the opinion of a committee composed of the head of the Goodyear Relief Association, two representatives of the company and two members of the Goodyear Industrial Assembly. Mr. Litchfield has previously given many similar donations for the benefit of the company's employes, both for merit and distress.

ALBERT B. NORWALK, vice-president in charge of sales of the Murray Rubber Company, has resigned that position.

CAPTAIN CHARLES KINGSFORD-SMITH and two members of his round-the-world crew arrived in Akron in the Southern Cross on July 19 to confer briefly with officials of the B. F. Goodrich Company. He was accompanied by LEE SCHOENHAIR, Goodrich pilot, from Kansas City to Akron.

W. A. MOORE, of the Rubber Service Laboratories Company, subsidiary of the Monsanto Chemical Works, has been assigned to the western territory of the company, succeeding E. R. WAITE, who resigned recently to become plant superintendent of the Sheller Manufacturing Company, Portland, Ind. C. WHEELER will cover northeastern Ohio territory.

HENRY J. BROWN, who last summer piloted the General Tire & Rubber Company's plane to victory in the Los Angeles-Cleveland non-stop derby of the national air races, will pilot JOHN HENRY MEARS' plane "City of New York" on its round-the-world flight when it attempts to break the 21-day record of the Graf Zeppelin. The date of the start of the flight has not been fixed.

F. E. TITUS, general sales manager of the Pacific Goodrich Rubber Company, has sailed from New York for Los Angeles via the Panma Canal, accompanied by Mrs. Titus and their son, Woodruff. He stopped off at Washington, D. C., on his way from a Goodrich executive conference at Akron early this month.

WILLIAM R. PLUMMER, formerly associated with the laboratories of the General Atlas Carbon Company and now in the development department of the Standard Oil Company of Indiana, sailed for Europe on July 15 together with ten other oil experts and executives connected with the Standard Oil Company of New Jersey in the commercialization of the hydrogenation process. The group will get first-hand information in Germany of recent tests and developments in the process.

CATALPO
for
Footwear

Rubber News Around the World

F. W. BARKER WILL HEAD RUBBER SHARE EXCHANGE

Owing to the demands of other interests upon his time, T. G. Hatherill-Mynott has resigned the chairmanship of the Mincing Lane Tea & Rubber Share Brokers' Association, otherwise known as the Mincing Lane Stock Exchange. The committee has unanimously elected as the new chairman F. W. Barker, who has previously been deputy-chairman. Mr. Barker is just over 40 years of age, so that he brings comparative youth to his new post. The committee has been all in favor of an energetic policy, and Mr. Barker has all the necessary qualifications and has plenty of experience to draw upon.

R. F. Fidler, of Cooper, Cooper & Co., has been prevailed upon to become deputy-chairman of the association. Mr. Fidler was chairman for a number of years until severe illness caused him to relinquish the post. His recovery and return to active business were very welcome to Mincing Lane, where his experience, judgment and advice are held in high esteem. Mr. Fidler has guided the association through some difficult times, and his counsel at the present period will be invaluable.

TROWBRIDGE TIRE FIRM MAKES FIRST REPORT

The first report of the Trowbridge Tire & Rubber Co. (1929), Ltd., states that the trading profit for the period from November 1, 1928, to March 31, 1930, amounted to £12,091 ($60,455). Directors' fees absorb £1,870 and income-tax £1,750, and £4,342 has been appropriated for depreciation, while £992 profit earned prior to incorporation has been written off preliminary expenses, leaving £3,137 to be carried forward.

In the prospectus net profits were estimated at not less than £30,000 ($150,000) per annum when the development program, then under way, was completed. The amount (£10,522) by which the valuation placed on the assets as acquired from the vendors exceeded the purchase price payable by the company has been applied in reduction of fixed assets.

CATALPO
for
Inner Tubes

Rubber Roads in France

C. M. Bruce, of the Anglo-French Rubber & Produce Agency, has declared in a recent statement that experiments on rubber road paving have been made and are still being made in France and that his company has sold rubber for that purpose. It is believed, however, that there are certain objections raised by the French military authorities to such thoroughfares.

England May Buy du Cros Home

Craigwell House, Bognor Regis, the magnificent seaside home of Sir Arthur Cros, former chairman of the Dunlop Rubber Company, is to be sold. It is understood that it will be purchased for £100,000 by the government in commemoration of King George's restoration to health there. The house was recently inspected by J. H. Thomas, Minister of the Dominions, at the suggestion of Lord Dawson of Penn, who attended the King during his convalescence there.

Make R-S-L Items in England

The Graesser Monsanto Chemical Company, Ltd., London, is now making at its own Ruabon factory in North Wales the range of rubber vulcanization accelerators and other products which have hitherto been supplied by the Rubber Service Laboratories Company, Akron, Ohio. Both companies are subsidiaries of the Monsanto Chemical Works, St. Louis, Mo.

NORTH BRITISH RUBBER OMITS COMMON DIVIDEND

The trading profit of the North British Rubber Company, the second largest British rubber manufacturer, was £94,082 for 1929, compared with £120,109, and £25,986 is brought in, making an available total of £120,068. Income-tax reserve again receives £10,000, and £27,246 is provided for depreciation, against £29,434. After payment of debenture interest and preference stock dividends, £25,000 is again placed to general reserve, and the balance, £27,152, is carried forward.

The directors state that owing to world-wide trade depression and stringent financial conditions they are unable to recommend any dividend on the ordinary shares. Owing to the fall in selling prices, sterling turnover for the year showed a slight falling off, but the volume of sales has been maintained. The sum of £20,000 received in payment for deferred shares of Dunlop-North British Shoe (proprietary), Australia, has been placed to reserve. Debenture stock to the amount of £15,000 has been released for repayment of loan to His Majesty's treasury under the Trade Facilities Act, and has been reissued, together with stock previously released to the amount of £30,000.

BRAZIL NOW HAS ONLY ONE TIRE MANUFACTURER

According to a recent report to the Department of Commerce by Vice Consul Rudolf E. Cahn, Rio de Janeiro, only one small company manufactures automobile tires in Brazil at present, the Cia. Brazileira de Artefactos re Borracha. This company was established in 1921, but commenced manufacturing pneumatic tires only a few years ago. The business done by it was so unsatisfactory that it discontinued manufacturing tires. Toward the end of 1928 it was reorganized, and its tire production at the present time is esimated by an important local tire distributor at not more than 20 tires for passenger cars per day. The article produced, however, is reported to be still of very poor quality, and in several instances did not stand up more than one month.

Tires for passenger cars were also being manufactured in the city of Para on a very limited scale, but the company went bankrupt in 1929. A second Brazilian company in that city was said to be importing machinery from the United States for the manufacture of inner tubes, but it is not known that they have commenced manufacturing.

Foreign manufacturers, therefore, have as yet nothing to fear from the domestic tire industry, and it is not believed that such an industry will be firmly established for years to come. Factors adversely affecting the manufacture of automobile tires in this country have been the great distance and high freight rates between the districts in which rubber is produced and the principal consuming centers, the high cost of power in most places, and the lack of skilled laborers. The supply of unskilled labor, however, is usually plentiful and relatively cheap.

ARRANGE RAPSON MERGER WITH DUNLOP-PERDRIAU

Eric Johnson, chairman of the Rapson Tire & Rubber Co. (Australia), Ltd., states that the agreement embodied in the proposed amalgamation with the Dunlop-Perdriau group has been completed. The firm's factory is in Tasmania and certain arrangements had to be made before the seal was affixed. These involved the arrangement of a special contract for electric power, the completing of certain patent rights, and certain negotiations with the English Rapson Company.

At a board meeting held later the question was discussed as to whether the present Rapson Company would reopen the factory, and it was ultimately decided that, provided satisfactory arrangements could be made, the factory would be reopened for a limited production.

Dunlop-Perdriau directors recently put in effect a curtailment plan by which both the Sydney and Melbourne plants are closed one week in four.

Rubber Goods and Specialties

Bevel-Edge Tube Patch

The Las-Stik Manufacturing Company, Hamilton, O., is now marketing an improved beveledge tube patch assortment in a new, flat metal container, litrographed in five colors. Each package contains an assortment of patches for repairing punctures from the size of a pinhole to the biggest

hole the motorist will ever encounter in his road travels. To make the repair, it is necessary simply to prepare the tube for the patch, select the size patch that will cover the puncture, strip off the Holland backing and put it in place . The bevel-edge removes all danger of the tube chafing in the casing. The use of this assortment eliminates the need for a knife or scissors to cut a patch for a specific job.

Darex Insulating Sole

Among recent developments in shoe bottomings is the Darex sole and heel which the Dewey & Almy Chemical Company, Cambridge, Mass., is at present introducing to the shoe trade. In addition to being comfortable, light in weight, and slip-proof even on wet grass or pavings, its makers claim for it excellent insulating properties against heat and cold. Darex is made from a special felt impregnated with liquid rubber latex and then compressed down to a fraction of its original thickness. This material comes in white, black and brown, and presents a soft rich texture such as is generally associated with a high-grade shoe bottoming. In any shade, this latex bonded felt is non-marking, while the soles will wear and keep their shape without warping, spreading, becoming brittle or deteriorating with age or exposure. Neither sun nor salt water is said to affect their structure.

Hoptoit Shrimp Lure

A new addition to the Pflueger line of tackle of the Enterprise Manufacturing Company, Akron, O., is the Hoptoit, a lure that is a close imitation of a shrimp and is made of pure, soft rubber, tough and flexible. Painted and decorated with a special formula, it is said to be waterproof, indestructible and will not crack or peel. A solid metal construction between the treble hook and line avoids all strain on the body. The manufacturers recommend it as excellent for taking all game fish for which the live shrimp is advised, including bass and other fresh water game fish. The length of its body is three inches, and it is mounted with extra strong bright tin-plated treble hooks.

Portable Pneumatic Boat

A new pneumatic boat which can be carried on the running board or in the luggage rack of an automobile has made its appearance on the English market. When inflated, the boat measures 10 feet long and 4 feet beam, with an inside width of 2 feet, and it can be propelled by a small outboard motor or by a pair of oars. The boat can also be used upside down as a bathing raft. For transport it can be deflated and packed into a canvas valise measuring 2 feet, 6 inches, by 1 foot, 3 inches, by 9 inches, and the weight is only 35 pounds. A special nozzle fits over the exhaust pipe of the car for the purpose of inflation. The maker is the R. F. D. Company, 17 Stoke Road, Guilford, Surrey, England.

Non-Puncturable Tire

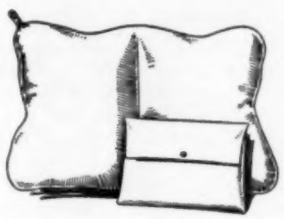
A non-puncturable pneumatic tire has been patented by M. Matheson, New South Wales, Australia, in which a compressed mass of wool in a liner is fitted between the inflatable tube and the outer casing. In a modification, the wool is packed between superimposed layers of rubberized fabric, the tube being replaced by a packing of wool.

Swimming Gloves

The Ducksfoot Swimming Glove Company, Ltd., Manchester Street, London, England, has placed on the market webbed gloves which are designed to give ease in swimming owing to the extra buoyancy obtained with their aid. The gloves, which are made in lisle and artificial silk, are offered in a variety of sizes for men, women and children.

Converse Air Pillow

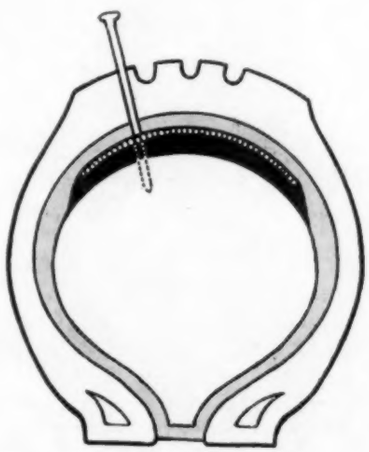
Adaptable for night sleeping or for a head rest during long motor trips and train rides, these air pillows are now being offered by the Converse Rubber Company, Malden, Mass. They take up little space when deflated, sliding into any available place. Three types are sold, each in a uniform size



of 12 by 18 inches. The Outdoor air pillow is made of serviceable khaki fabric with a lock valve to sell for $1.25 or in attractive colors—red, green and blue—for $1.50. The Komfort air pillow is of the same type, but made from stronger fabric, and is sold with a carrying pouch for $2.

Diamond Air-Fast Tube

Another puncture-sealing inner tube has been introduced to the market by the Diamond Rubber Company, of Akron, O., subsidiary of the B. F. Goodrich Company, under the name of "Air-Fast." The thick part of this patented tube is made of compressed rubber that will tightly grip a nail



or other sharp object. As the nail is withdrawn, the compression member closes the opening in the tube just as space momentarily made vacant by the withdrawal of a finger from a glass of water is immediately filled with water. According to the manufacturer, it will last the lifetime of three or four tires.

Current Crude Rubber Items

RUBBER EXCHANGE VOTES AGAINST 5-TON CONTRACT

Proposals to amend the by-laws of the Rubber Exchange of New York covering changes in the present "A" contract terms were defeated by members of the exchange on July 14. A tabulation of ballots showed that the amendments had failed to carry by a vote of 47 against 46, or less than the necessary two-thirds majority.

It had been proposed to change the "A" delivery terms to embrace nine grades of standard rubber, five grades of ribbed smoked sheets and four grades of first latex crepe. It was also planned to raise the trading unit from 2½ tons as at present to one of 5 tons, and the unit of fluctuation from one-tenth of a cent to one one-hundredth of a cent. Other changes involved rates of commission.

LONDON MARKET ADOPTS NEW RUBBER CONTRACT

A new form of c.i.f. contract for plantation rubber to be shipped to the United States and Canada came into force in the London market on July 1. Among some of the important revisions are an alteration in the claim allowed for the loss of weight and considerable alterations in the insurance provisions.

Under the new form, the buyer can claim for all the loss in weight should such loss in weight exceed one per cent over the quantity bought and paid for. The minimum penalty imposed upon a seller for defaulting has been reduced to a halfpenny per pound. Objections to shipments on ground of quality must be forwarded by the final buyer to London not later than 28 days following discharge of the rubber at destination named in the contract.

N. E. I. Rubber Acreage

According to official statistics issued by the Netherlands East Indies, the area planted to rubber on estates at the end of 1929 was 1,353,000 acres.

Fiji Island Output Off 92.7%

The low prices for crude rubber during 1929 caused a drop in rubber production in the Fiji Islands to only 6,885 pounds, valued at $1,090, as compared with 94,661 pounds, valued at $22,892, in 1928. The 1929 output was equal to only 7.3 per cent of the production of the previous year.

Bar Squatters Growing Rubber

Squatters in Singapore on land adjoining the Yeo Chu Kang Road were recently forbidden to grow rubber on land rented from the Crown. The land in question comprises some 2,000 acres and was originally granted as a temporary measure to squatters about ten years ago at a nominal rental of $2 (Straits) per acre for growing foodstuffs.

ESTATE STOPS WORKING FOR DEPRESSION PERIOD

The policy of stopping work during depression is to be adopted by the Sekong Rubber Co., the directors of which are doubtful as to the advisability of incurring further expenditure on the estate and are of the opinion that the estate should be closed and all work stopped until the board decides to resume operations.

This estate is not located for cheap working and the "all-in" costs for the past six years have averaged 15.35 d. (30.7 cents) per lb. At present the company is making a loss of about $2,000 per month.

RUBBER AT LOWEST LEVEL ON NEW YORK EXCHANGE

When crude rubber for July delivery sold on July 17 for 10.70 cents a pound, the commodity established a new low level on the Rubber Exchange of New York. Five tons of rubber were sold at that price on the old "A" contract basis, while ten tons were sold on the new No. 1 standard contract at 10.80 cents a pound for July delivery, a new bottom for the certificated rubber.

Trading on the exchange, while more active than during the previous fortnight, has not come up to the activity that marked the declines of 1928 and 1929. The most active days of the period were July 10 and 11. On the former day there were 559 sales on the "A" contract and 36 sales on the new contract, while on the latter there were 506 sales under the old contract and 54 sales under the No. 1 standard contract.

At the close, pressure from bearish interests was apparent, as was a noticeable lack of important buying power. Large dealers were buyers on balance, while there was a little dealers' selling but on the whole no particular feature to the activity. Foremost among the buyers were a large importing house at New York and a London dealer, the former taking large weights of September and the latter old and new March.

Daily closing prices and the number of sales on each contract are shown in the table at the bottom of this page.

CEYLON RUBBER EXPORTS DECLINED DURING JUNE

Ceylon shipments of crude rubber during June totaled 4.848 tons, against 5,453 tons in the previous month, according to cables to the Rubber Exchange of New York.

June shipments from Ceylon to the United States were 3,245 tons, against 3,360 tons in the previous month, while 958 tons were shipped to the United Kingdom, against 1,534 tons in May. Shipments to other countries showed a slight increase, totaling 645 tons in June compared with 559 tons in May.

CATALPO
for
Cushion Stocks

Closing Prices on Rubber Exchange of New York, Inc.

FROM JULY 3 TO JULY 17, 1930

		Spot	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	Sales
No. 1 Standard Contract of 10 Tons															
July	3	11.90	11.95	12.12	12.30	12.49	12.66	12.80	13.03	13.21	13.39	13.57	13.75	13.93	27
	7	11.67	11.85	12.05	12.25	12.40	12.55	12.70	12.90	13.10	13.30	13.48	13.66	13.84	29
	8	11.80	11.72	11.85	11.99	12.16	12.32	12.49	12.66	12.83	13.01	13.19	13.37	13.55	30
	9	11.62	11.56	11.69	11.83	12.01	12.18	12.35	12.50	12.64	12.75	12.95	13.12	13.29	18
	10	11.50	11.52	11.66	11.78	11.95	12.12	12.30	12.43	12.56	12.70	12.87	13.04	13.21	36
	11	11.00	11.02	11.14	11.27	11.45	11.63	11.82	11.94	12.08	12.20	12.42	12.65	12.85	54
	12	11.00	11.02	11.14	11.30	11.45	11.60	11.75	11.95	12.07	12.19	12.40	12.60	12.80	22
	14	10.90	11.00	11.08	11.17	11.33	11.59	11.65	11.80	11.95	12.10	12.30	12.50	12.67	26
	15	11.10	11.05	11.17	11.29	11.45	11.60	11.75	11.92	12.08	12.25	12.42	12.60	12.77	14
	16	10.90	11.00	11.11	11.22	11.37	11.52	11.65	11.84	12.01	12.17	12.32	12.47	12.63	25
	17	10.80	10.84	10.97	11.10	11.24	11.36	11.50	11.67	11.84	12.02	12.18	12.35	12.51	68
"A" Contract of 2½ Tons															
July	3	—	11.70	11.90	12.20	12.40	12.50	12.60	12.80	13.00	13.20	13.40	13.60	13.80	148
	7	—	11.70	11.90	12.10	12.30	12.40	12.60	12.80	12.90	13.10	13.30	13.50	13.70	90
	8	—	11.60	11.70	11.80	12.00	12.10	12.30	12.50	12.60	12.80	13.00	13.20	13.40	249
	9	—	11.40	11.60	11.70	11.90	12.00	12.20	12.40	12.50	12.60	12.80	13.00	13.20	261
	10	—	11.40	11.50	11.60	11.80	11.90	12.10	12.30	12.40	12.50	12.70	12.90	13.10	559
	11	—	10.90	11.00	11.10	11.30	11.40	11.60	11.80	11.90	12.10	12.20	12.40	12.60	506
	12	—	10.90	11.00	11.10	11.30	11.40	11.60	11.80	11.90	12.10	12.20	12.40	12.60	56
	14	—	10.90	11.00	11.10	11.20	11.30	11.50	11.70	11.80	12.00	12.20	12.40	12.60	114
	15	—	10.90	11.00	11.20	11.30	11.40	11.60	11.80	11.90	12.10	12.20	12.40	12.60	159
	16	—	10.80	11.00	11.10	11.30	11.40	11.50	11.70	11.80	12.00	12.20	12.40	12.60	34
	17	—	10.70	10.80	10.90	11.10	11.20	11.40	11.60	11.70	11.90	12.10	12.20	12.40	120

PATENTS ARE AWARDED TO AKRON RUBBER MEN

Several men associated with the rubber industry at Akron, O., have been awarded patents on inventions by the United States Patent Bureau this month. Most of these patents have been assigned by their inventors to Akron rubber companies or their subsidiaries.

The Goodyear Tire & Rubber Company was named assignee of five of these inventions, including that of an extruding-machine head, built by Laurence Wetmore, which was recognized as having 14 novel features; a sliving clamp for inner tubes, invented by James C. Warden; a rimming press, an invention of Robert W. Snyder; Ross E. Jenkinson's vehicle tire, and a fifth, a driving mechanism and conveyor belt, by Elon F. Maas.

An ebonite composition and the method of producing same which was invented by Harold Gray, was found patentable on 12 different claims. Noah L. Warner's invention of a tire-building method and apparatus was recognized as having eight claims. Rights to these two inventions were assigned to the B. F. Goodrich Company.

Two other inventions assigned to this company were Roscoe V. Ritchey's method and apparatus for conveying strip material, and John H. Doty's tire-building apparatus, both inventions being recognized by officials as having nine claims.

The Miller Rubber Company was named assignee of Ralph E. Riley's invention of a method of making hand-grip sleeves.

Max O. Kuhn assigned rights to his invention of a punching and riveting press to the Firestone Steel Products Company. A patent assigned to the Firestone Tire & Rubber Company was that of a device for guiding flash-molded strip material into machines for operating thereon, the invention of Edward D. Putt.

GLYCO COMPANY NAMED AMERICAN ALGIN AGENT

The Glyco Products Company, Inc., of Bush Terminal, Brooklyn, N. Y., have been appointed exclusive sales agents for the eastern part of the United States and the export trade for Alkagel and Sodium and Ammonium Alginates manufactured by the American Algin Company. These products are arousing interest as water-proofing and alkali and salt water-proofing agent for concrete, mortars, stucco plaster, etc.

They are similarly used in treating textiles, paper and leather. Low priced durable and beautiful plastics are made by using the Alkagels in combination with powdered mica, wood-flour, asbestos, carbon, etc. Mixed with rubber latex Alkagel makes a strong elastic film.

India on Full Schedule

The India Tire & Rubber Company, Mogadore, O., is working 24 hours a day and running six days a week, it was stated early this month. June sales were reported on a level with sales of June last year.

Rubberset Names Agents

The William P. Horn Company, with offices at San Francisco, Los Angeles, and Seattle, has been appointed western sales representative of the Rubberset Company, Newark, N. J. In the Pacific northwest the William P. Horn Company will handle both shaving and paint brushes, but in California the organization will distribute only the paint brush line. The Rubberset Company has recently been reorganized and a new sales policy defined under H. L. Mapes, sales manager, whereby the products of the company will be distributed only through jobbers. The company is operated by the Rubber & Celluloid Products Company, also of Newark, N. J.

NATIONAL ACME TO MAKE AIRWHEELS FOR GOODYEAR

The Goodyear Tire & Rubber Company recently signed a contract with the National Acme Company, whereby that firm will produce hubs and brakes for the Goodyear line of Airwheels. Goodyear is now making these combination airplane wheels and tires in nine different sizes and has shipped more than 2,000 of them since the start of production just a year ago.

The new wheel is a large air-volume tire with sectional diameter close to half its height, having no rims, disc wheels or spokes, but being directly mounted on the hub. It is of straight side construction, so designed that under no conditions will it jump the hub and become entangled in the running gear. Airwheel inflation requires only from six to 12 pounds of air, but it is claimed to be able to build up additional air pressure at the time of landing to a greater extent than ordinary high pressure tires. Braking is obtained through an internal expanding method, a cylindrical tube covered with molded lining expanding to contact with practically the entire inner surface of the hub.

Putting the Airwheel into regular production is expected to reduce the cost of manufacture so that it will be able to compete in price with the old style wheel and tire. Both hubs and brakes are under Goodyear patents, and National Acme is serving only as manufacturing agent.

Consulting Rubber Technologist

PRACTICAL

Twenty years' experience with the largest and most successful companies in the country

Physical and Chemical Testing
Special facilities for abrasion and quick age tests

Expert Advice to Correct Factory Trouble

New Processes and Formulas Developed

R. R. Olin Laboratories
P. O. Box 372, AKRON, OHIO
Telephones: Barberton 828, Portage 5895W

CLASSIFIED ADVERTISING

Five cents a word, minimum charge $2.00, payable in advance.
Address replies to Box Numbers
THE RUBBER AGE
250 West 57th St., New York City

HELP WANTED

AN OLD established rubber factory in New Jersey has position for a man who can open up a department for producing golf balls, tennis balls, small mechanical tubing and other molded articles. Write stating experience. Address Box 562, THE RUBBER AGE.

WANT thoroughly experienced Construction Engineer on Construction and Development of Tires. Outline fully experience, education, salary expected and what you have accomplished. Address Box 563, THE RUBBER AGE.

MIDWESTERN rubber factory has opening for position of assistant production manager in department manufacturing golf balls. Must have had actual experience in turning out balls of proven merit on efficient basis. Splendid opportunity for man possessing technical and managerial qualifications. Address Box 560, THE RUBBER AGE.

WANTED—Young man with mechanical experience in the Rubber Industry, to become Sales Engineer for long established manufacturer of recording instruments for pressure, temperature, electricity and motion; and automatic controllers for temperature, pressure and humidity (both air and electrically operated types). Candidates preferred who have had both manufacturing experience and scientific education, and who are free to travel through the great industrial districts. Highest character references required. Write, stating experience, age and salary desired. Address Box 561, THE RUBBER AGE.

CHEMICAL ENGINEER or chemist for control, development and research work in the rubber industry. Principal work on composition soles and rubber heels. Give complete statement of training and experience, also personal history, in first letter. Give two college references and two business references in your home city. Replies will be held in confidence. Address—International Shoe Company, Rubber Plant, Hannibal, Missouri.

Use this column for RESULTS!

Read it regularly for PROFIT!

LATE MARKET PRICES

RUBBER—COTTONS AND FABRICS—CHEMICALS

NEW YORK, JULY 19, 1930

RUBBER

Crude

NEW low levels for all time were reached on July 18 with London spot quoted at 5 5/16 pence a pound and the July "A" position on the New York Rubber Exchange selling at 10.50 cents a pound. On the New York outside market the asking price for spot smoked sheets had dropped to 10⅞ cents a pound by July 19.

Thus far no definite results have come about as a result of the Anglo-Dutch conferences. Dutch producers, meeting on July 17, approved a proposition to negotiate with the Dutch East India government for the purpose of achieving restriction for all rubber producers including the native to 75 per cent of the 1929 crop. The proposal is reminiscent of a similar plan attempted in 1921, but which failed and led to the establishment of the Stevenson Act restrictions.

Domestic consumption of crude rubber in the first half of 1930 was 8.8 per cent higher than in the last six months of 1929. Despite the June let-down, it is expected that the last half of the current year will show a further advance in rubber absorption.

Prices quoted on the New York outside market on July 19 were as follows:

Plantations—

Ribbed Smoked Sheets—		
Spot-July	.10¾@	.10⅞
Aug.-Sept.	.10¾@	.11⅛
Oct.-Dec.	.11⅛@	.11⅜
First Latex, crepe spot	.10⅝@	.11
Amber Crepe, No. 2	.10¼@	.10½
Amber Crepe, No. 3	.10 @	.10¼
Amber Crepe, No. 4	.09¾@	.10
Brown Crepe, Clean thin	.09¾@	.09⅞
Brown Crepe, specky	.09¼@	.09½
Liquid Latex, per gal.	.90 @	1.25

Paras—

Up-river Fine	.13¼@	.13½
Up-river Medium	Nominal	
Up-river Coarse	.06½@	—
Acre Bolivian, fine	.13½@	.13¾
Caucho Ball, Upper	.06½@	—
Islands, fine	Nominal	

Centrals—

Central, scrap	.06½@	.06¾
Esmeraldas	.06½@	.06¾

Balata—

Block, Colombia	Nominal	
Block, Ciudad	.41 @	.42

LONDON MARKET

Standard Ribbed Smoked Sheets—Buyers

Spot-July	@	5⅝d
Aug.-Sept.	@	5⅝d

SINGAPORE MARKET

Standard Ribbed Smoked Sheets—Sellers

Spot	@	4⅛d

Scrap

With the exception of standard white auto tires, bicycle tires and clean solid truck tires, there have been declines in all grades of rubber scrap during the fortnight, as the following quotations show:

(Prices to Consumer)

Auto tire peelings	ton	23.00	@25.00
Standard White auto	ton	40.00	@42.50
Mixed auto	ton	13.50	@15.00
Bicycle tires	ton	13.00	@15.00
Clean solid truck tires	ton	24.50	@25.00
Boots and shoes	cwt.	1.20	@ 1.30
Arctics, untrimmed	lb.	.00⅝@	.00¾
Inner tubes, No. 1	lb.	.06½@	.06⅝
Inner tubes, No. 2, compounded	lb.	.02¾@	.03
Inner Tubes, Red	lb.	.02⅞@	.03
Air Brake Hose	ton	14.00	@16.00
Rubber Hose	ton	12.00	@13.00

Reclaimed

June consumption of reclaimed rubber at 14,063 long tons was lower than in May, and the decline in proportion to the use of the crude commodity was even greater. Prices have been steadier than those of crude rubber and were quoted at the end of the fortnight as follows:

High Tensile

Super-Reclaim No. 1 Black	lb.	.10¾@	.11
High Tensile Red	lb.	.10½@	.10¾

Shoe

Unwashed	lb.	.06¾@	.07
Washed	lb.	.09 @	.09¼

Tube

No. 1 (Floating)	lb.	.11½@	.12
No. 2 (Compounded)	lb.	.08¾@	.09

Tires

Black	lb.	.06¾@	.07
Black, selected tires	lb.	.07 @	.07¼
Dark Gray	lb.	.08 @	.08¼
Light Gray	lb.	.09¼@	.09½
White	lb.	.11 @	.11¼
Truck, Heavy Gravity	lb.	.06¾@	.07
Truck, Light Gravity	lb.	.07 @	.07¼

Miscellaneous

Mechanical blends	lb.	.05 @	.05½
Red	lb.	.10½@	.11

COTTON and FABRICS

Cotton

WHILE rubber has dropped to new low levels, cotton has been gaining back a slight part of its previous losses. The New York quotation for spot middling upland cotton on July 19 was 13.65 cents a pound as compared with 13.30 cents on July 7.

A better tone is noticeable on the cotton market, due principally to the increasing need for good rains over the central and western belts and also to the manifest inclination of trade interests to absorb contracts whenever the new October position approaches the 12½-cent level. The market is coming more and more under the influence of day to day weather developments.

The high, low and closing prices on the New York Cotton Exchange on July 19 were as follows:

	High	Low	Close	Close
		July 19		July 7
July	13.43	13.26	13.43	13.18
Oct.	13.33	13.18	13.31	12.79
Dec.	13.50	13.39	13.49	12.96

Tire Fabrics

Certain grades of tire fabrics have continued to show declines, but a majority of the more important constructions have remained stable during the fortnight. Late price quotations were as follows:

CORD

Peeler, carded, 23/5/3	lb.	.39½@	.40
Peeler, carded, 23/4/3	lb.	.41½@	.42
Peeler, carded, 13/3/3	lb.	.37 @	.37½
Peeler, carded, 15/3/3	lb.	.37½@	.38
Egyptian, carded, 23/5/3	lb.	.48¾@	.49¼
Egyptian, combed, 23/5/3	lb.	.54¾@	.55¼

CHAFERS

Carded, American, 8 oz.	lb.	.34½@	.35½
Carded, American, 10 oz.	lb.	.34 @	.35
Carded, American, 12 oz.	lb.	.32 @	.33
Carded, American, 14 oz.	lb.	.31 @	.32

LENO BREAKER

Carded, American, 8¼ oz.	lb.	.35 @	.38½
Carded, American, 10¼ oz.	lb.	.35 @	.38½

SQUARE WOVEN

Carded, American, 17¼ oz. 23-11 ply	lb.	.39 @	.39½
Carded, American, 17¼ oz. 10-ply	lb.	.31 @	.32

Sheetings

Prices on sheetings dropped still further during the past two weeks. Late quotations, according to the Textile Brokers' Association, were as follows:

40-inch, 2.50-yard	yd.	— @	.09¼
40-inch, 2.85-yard	yd.	.08⅜@	.08½
40-inch, 3.15-yard	yd.	— @	.09
40-inch, 3.60-yard	yd.	— @	.08
40-inch, 3.75-yard	yd.	— @	.07⅞
40-inch, 4.25-yard	yd.	— @	.05⅞

Ducks

Hose and belting ducks have fallen off in price during the fortnight, but the other grades remain firm. Sales are still quiet on the New York market. Late price quotations for the active grades follow:

Belting and Hose	lb.	.30 @	.30½
Enameling	lb.	.32 @	.32½
Single filling	lb.	.14 @	.14½
Double filling	lb.	— @	.16

CHEMICALS

WHILE the price structure in the case of a number of softeners has shown a downward tendency, quotations on all the principal accelerators and anti-oxidants have remained stable during the month. Suppliers of chemicals and compounding ingredients to the rubber industry look forward to the second half of the year being appreciably better than the first six months, with the peak demand coming in the early fall. Though the first half of 1930 suffers in comparison with the corresponding period of last year, it must be remembered that production schedules in rubber factories as measured by crude rubber consumption showed a gain of 8.8 per cent over the last six months of 1929. The demand for rubber chemicals has gained correspondingly.

ACCELERATORS

Organic				
A-1	lb.	.24	@	.27
A-5-10	lb.	.33	@	.36
A-7	lb.	.55	@	.59
A-11	lb.	.62	@	.66
A-16	lb.	.57	@	.61
A-19	lb.	.58	@	.62
A-20	lb.	.64	@	.68
A-32	lb.	.90	@	.95
Aldehyde ammonia, crystals	lb.	.65	@	.70
Aniline oil, drums, f.o.b. works	lb.	.15	@	.16
Captax	lb.			
Crylene	lb.	.55	@	.65
paste	lb.	.45	@	.55
Di-Ortho-Tolyguanidine	lb.	.42	@	.44½
Diphenylguanidine	lb.	.30	@	.32½
Dipsol	lb.	4.30	@	4.50
Ethylidene aniline	lb.	.45	@	.47½
Formaldehyde aniline	lb.	.37½	@	.40
Heptene	lb.	.40	@	—
Hexamethylene-tetramine	lb.	.58½	@	.61
Lithex	lb.	.18	@	.20
Methylenedianiline	lb.	.37½	@	.40
Monex	lb.	3.25	@	—
Oxynone	lb.	.68	@	.80
Phenex	lb.	.75	@	—
R & H 40	lb.	.40	@	.42½
R & H 50	lb.	.40	@	.42½
R & H 397	lb.	.75	@	.77½
R-2	lb.	1.95	@	2.15
Safex	lb.	1.20	@	1.25
SPDX	lb.	.75	@	—
Super-Sulphur No. 1	lb.			
No. 2	lb.			
Tensilac, No. 39	lb.	.40	@	.42½
Tensilac, No. 41	lb.	.50	@	.52½
Thermio F	lb.	.50	@	.55
Thiocarbanilid, drums	lb.	.25½	@	.28½
Trimene	lb.	.75	@	—
base	lb.	1.20	@	—
Triphenylguanidine	lb.	.58	@	.62½
Tuads	lb.			
Ureka	lb.	.75	@	1.00
Vulcanex	lb.			
Vulcone	lb.			
Vulcanol	lb.			
Z 88	lb.	.50	@	.60
Zimate	lb.			
Inorganic				
Lead, sublimed blue	lb.	.08¼	@	—
Lead, white	lb.	.08½	@	.08¾
Litharge, domestic	lb.	—	@	.08¼
Magnesia, calcined, light	per 100 lb.	5.35	@	5.45
heavy	per 100 lb.	3.65	@	3.75

COLORS

Blacks (See Compounding Materials)

Blues				
Prussian	lb.	.35	@	.36
Ultramarine	lb.	.06	@	.32
Browns				
Sienna, Italian	lb.	.05½	@	.12½
Umber, Turkey	lb.	.04½	@	.07
Greens				
Chrome, light	lb.	.30	@	.32
medium	lb.	.31	@	.33
dark	lb.	.34	@	.36
Chromium Oxide, bbl.	lb.	.34½	@	.35½
Reds				
Antimony crimson, 15/17	lb.	.40	@	.44
sulfur, free	lb.	.56	@	.66
golden 15/17 F.S.	lb.	.20	@	.25
Indian English	lb.	.08	@	.11
Domestic (Maroon)	lb.	.11	@	—
Oximony	lb.	.13¼	@	—
Red oxide, pure	lb.	.10	@	.12
Venetian red	lb.	.03	@	.06
Vermillion, quicksilver, English	lb.	1.75	@	1.80
Whites				
Lithopone, Akcolith	lb.	.05 3/5	@	.06
Lithopone, Albalith	lb.	.05¼	@	.05¾
Lithopone, Azolith	lb.	.05¼	@	.05¾
Lithopone, Vanolith	lb.	.05¾	@	—
Titanox B, f.o.b. St. Louis,	lb.	.07¼	@	.07¾
Titanox C, f.o.b. St. Louis,	lb.	.07¾	@	.08¼
Zinc Oxide—American Process				
American Azo:				
ZZZ (lead free)	lb.	.06½	@	.07
ZZ (leaded)	lb.	.06⅞	@	.07⅛
Horsehead Brand:				
Special	lb.	.07	@	.07½
XX Green	lb.	.07	@	.07½
XX Red, lead free	lb.	.06½	@	.07
Kadox, black label	lb.	.10⅝	@	.10⅞
blue label	lb.	.09⅜	@	.09⅞
red label	lb.	.08	@	.08½
Zinc Oxide—French Process				
White seal	lb.	.11⅝	@	.11⅞
Green seal	lb.	.10⅜	@	.10⅞
Red seal	lb.	.09⅜	@	.09⅞
Yellows				
Chrome	lb.	.17	@	.17½
Ocher, French medium	lb.	.02	@	.03
domestic	lb.	.01⅝	@	.02

COMPOUNDING MATERIALS

Aluminum Flake	ton	21.85	@	24.50
Ammonia carbonate, lump	lb.	.07½	@	.07¾
Asbestine	ton	14.75	@	18.00
Barium carbonate	lb.	.03½	@	.05
Barium Dust	lb.	.05	@	.06
Barytes southern off-color	ton	12.00	@	18.00
Western prime white	ton	23.00	@	—
imported	ton	27.00	@	36.00
Basofor	lb.	.04½	@	—
Blacks				
Arrow "Aerfloted"	lb.	.04½	@	.09½
Bone Black	lb.	.06	@	.12½
Carbon, compressed	lb.	.05	@	.10
Carbon, uncompressed	lb.	.05	@	.10
Disperso, f.o.b. Louisiana	lb.	.046	@	—
Disperso, f.o.b. Texas	lb.	.04½	@	—
Drop Black	lb.	.06	@	.14
Fumonex	lb.	.04½	@	.08
Excello, compressed	lb.	.05	@	.09
Gastex, f.o.b. Texas	lb.	.04	@	.05¼
Lamp Black	lb.	.10	@	.40
Micronex	lb.	.04½	@	.09½
Thermatomic-Thermax	lb.			
Flex	lb.			
P-33	lb.			
United carbon, fob Tex	lb.	.04½	@	.09½
Velvetex carbon	lb.	.04	@	.06
Blanc fixe dry f.o.b. works	ton	80.00	@	90.00
Carrara filler	lb.	.01¾	@	.02
Catalpo (fact.)	lb.	.02	@	—
Clay, China, domestic	ton	8.00	@	9.00
Aerfloted, Suprex	ton	10.00	@	22.00
Congaree, c. l. f.o.b. mine	ton	9.00	@	—
Dark Blue Ridge	ton			
Dixie	ton			
Langford	ton			
Lexington	ton	10.00	@	22.00
Mineral Flour, c.l. f.o.b. mine	ton	20.00	@	23.00
Par	ton			
Tensulite		15.00	@	—
Glues, extra white	lb.	.22	@	.26
medium white	lb.	.20	@	.24
Magnesia, carbonate	lb.	.08¾	@	.11
Mica, white water grnd.	lb.	.06	@	.08
Off color (biotite)	lb.	.05	@	.07
Rotten Stone (powdered)	lb.	.02	@	.05
Soapstone, powdered	ton	15.00	@	22.00
Starch, powdered	cwt.	3.72	@	4.02
Talc, domestic	ton	12.00	@	15.00
Pyrax A	ton			
Whiting, commercial	cwt.	—	@	1.00
English cliffstone	cwt.	1.75	@	2.00
Quaker	ton			
Superfine	ton	10.00	@	12.00
Sussex	ton			
Witco	ton	20.00	@	—
Zinc Carbonate	lb.	.09½	@	.10½
Zinc Stearate	lb.	.23	@	.24½

MINERAL RUBBER

Genasco (factory)	ton	50.00	@	52.00
Granulated M. R.	ton			
Hard Hydrocarbon	ton			
Paradura	ton	62.50	@	65.00
Pioneer, MR, solid	ton	40.00	@	42.00
Pioneer-granulated	ton	50.00	@	52.00
R & H Hydro-Carbon	ton	27.05	@	29.00
Robertson, MR, solid	ton	34.00	@	80.00
M.R. (gran)	ton	38.00	@	80.00

SOFTENERS

Acids				
Nitric, 36 degrees	cwt.	5.00	@	5.25
Sulfuric, 66°	cwt.	1.60	@	1.95
Tartaric, crystals	lb.	.35½	@	.36
Acids, Fatty				
Laurex	lb.	.15	@	.16
Stearex	lb.	.15	@	.19
Stearic, double pressed	lb.	.17	@	.22
Alkalies				
Caustic soda, 76%	cwt.	3.76	@	3.91
Soda ash, 58% C.L.	cwt.	1.40	@	
Oils				
Corn, refined, bbls.	lb.	.08	@	.09½
Cottonseed, crude		—	@	.07¼
Cycline	gal.	.27	@	.34
Degras (c.l. 100 bbls.)	lb.	.03¾	@	—
Less c.l. (10-25 bbls.)	lb.	.04	@	—
Lots less than 10 bbls.	lb.	.04¼	@	.04½
Fluxrite	lb.	.05½	@	.06½
Palm Lagos	lb.	.07⅜	@	.07¼
Niger	lb.	—	@	.07¼
Para-Flux	gal.	.17	@	—
Petrolatum, white	lb.	.08	@	.08½
Pigmentaroil	gal.	.21	@	.36
Pine, steam distilled	gal.	.65	@	.70
destructively distilled	gal.	.55	@	.58
Witco Palm Oil	lb.	.11	@	—
Witco Softener (f.o.b. wks.)	lb.	.02	@	—
Resins and Pitches				
Pitch, Burgundy	lb.	.06½	@	.07½
coal tar	gal.	.05½	@	.06
pine, 200 lb. gr. wt.	bbl.	9.00	@	10.00
Rosin, grade K, 280 lb.	bbl.	—	@	5.90
Pigmentar	lb.	.038	@	.0446
Tar Retort, 50 gal.	bbl.	13.50	@	15.00
Solvents				
Acetone, pure	lb.	.11	@	.12
Alcohol denatured, No. 1 bbls.	gal.	.40	@	.44
Benzol, 90%	gal.	.21	@	.23
Carbon bisulphide	lb.	.05½	@	.06¼
Carbon tetrachloride	lb.	.06¼	@	.07
Dryolene (f.o.b. Okla.)	gal.	.10	@	.10½
Gasoline, steel bbls.	gal.	.16	@	—
Naphtha, solvent	gal.	.35	@	.40
Rub-Sol (f.o.b .Okla.)	gal.	.09	@	—
Turpentine, spirits	gal.	.45	@	.51
wood	gal.	—	@	.44
destructively distilled	gal.	.40	@	.43
Waxes				
Beeswax, white	lb.	.51	@	.53
Carnauba	lb.	—	@	.34
Ceresin, white	lb.	.10	@	
Montan, crude	lb.	.06½	@	.07
Ozokerite, black	lb.	.24	@	.25
green	lb.	.26	@	.30
Paraffin (c. l.—f.o.b. N. Y.)				
Yellow crude scale	lb.	.02½	@	—
White crude scale 124/126	lb.	.02½	@	—
Refined, 125/127	lb.	.03¾	@	—
Refined, 128/130	lb.	.03¾	@	—
Refined, 135/137	lb.	.05¼	@	—
Refined, 138/140	lb.	.07¼	@	—

ANTI-OXIDANTS

Agerite, Resin	lb.			
Powder	lb.			
White	lb.			
Albasan	lb.	.70	@	.75
Antox	lb.			
B-L-E	lb.	.57	@	.60
Neozone	lb.			
Oxynone	lb.	.68	@	.80
Resistox	lb.	.54	@	.57
Stabilite	lb.	.57	@	.62
Stabilite Alba	lb.	.70	@	.75
VGB	lb.	.55	@	.66

SPECIALTIES

Sunproof	lb.	.35	@	.37½
Tonox	lb.	.56	@	.60

SUBSTITUTES

Black	lb.	.08	@	.14
White	lb.	.10	@	.16
Brown	lb.	.08	@	.15

VULCANIZING INGREDIENTS

Sulfur Chloride (drums)	lb.	.03½	@	.04½
Sulfur flour, Ref'n'd, 100% pure (bags)	cwt.	2.40	@	2.75
Commercial (bags)	cwt.	1.75	@	2.10
Vandex	lb.			

TIRES & TUBES
CRUDE RUBBER

STATISTICAL SECTION

AUTOMOBILES
GASOLINE

DURING the first six months of 1930, the United States has imported approximately 249,000 long tons of crude rubber and consumed slightly over 216,000 long tons, leaving a balance of nearly 33,000 long tons as surplus. Hence, stocks on hand in this country have increased from 118,609 long tons as of December 31 to 151,485 long tons as of June 30.

British stocks have increased at a similar rate. London and Liverpool warehouse inventories amounted to about 73,500 long tons at the end of December and had jumped more than 35,000 long tons to a record total of 108,727 long tons by July 12.

PLAN OF THE SECTION

The statistics included in this section have been chosen for their constant importance to the rubber industry. The tables are reprinted in the same relative position in every issue, each table being kept current by the addition of new figures as soon as they become available.

Table of Contents

United States Rubber Imports and Exports
Rubber Consumption in the United States
Rubber Invoiced to the United States
Daily Rubber Prices in New York
Monthly and Annual Rubber Prices
London Official Rubber Prices
Daily Cotton Prices in New York
Stocks of Crude Rubber in the U. S.
Rubber in London and Liverpool
Rubber in Singapore and Penang
United States Tire and Tube Statistics
Automobile Production—U. S. and Canada
Rims Inspected and Passed in the U. S.
United States Consumption of Gasoline
Rubber Exports from Producing Countries
Rubber Imports into Consuming Countries
Production of Misc. Rubber Goods
Imports of Gunyule and Related Gums
Consumption, etc., of Reclaimed Rubber

Rubber stocks in the east have declined in the first half year, but not to an extent sufficient to counterbalance the heavy gains shown in England and America. In view of this trend, bringing world stocks of crude rubber to the highest levels in history, the cut in production of about 30,000 long tons due to the May tapping holiday has had little effect on the statistical position of the commodity. Whether voluntary restriction of 25 per cent will be more effective remains to be seen.

Latest figures covering imports and exports from the leading producing and consuming countries have been added to the appropriate tables in this section.

U. S. Imports and Exports of Crude Rubber

	Gross Imports			Re-exports			Net Imports
YEARS	Long Tons	Total Declared Value	Average Declared Value per pound Cents	Long Tons	Total Declared Value	Average Declared Value per pound Cents	Long Tons
1921	185,894	73,772,677	17.76	5,716	2,414,924	18.86	179,678
1922	301,076	101,848,188	15.10	4,809	1,921,828	17.84	296,267
1923	369,144	185,060,304	26.72	8,772	5,672,319	28.87	360,372
1924	328,056	174,281,331	23.71	10,309	6,957,637	26.23	317,747
1925	396,642	429,705,014	48.36	14,827	19,847,753	59.76	381,815
1926	413,338	505,817,307	54.63	17,671	23,470,583	56.77	395,667
1927	426,258	339,874,774	35.60	27,775	24,795,488	39.76	398,483
1928	439,731	244,854,973	25.03	32,159	18,128,361	25.17	407,572
1929	560,084	239,178,783	19.15	36,485	16,868,733	20.64	523,599
1927:							
July	37,677	31,678,259	37.53	1,958	1,569,853	35.59	35,719
Aug.	32,810	26,896,931	75.92	1,809	1,332,768	34.12	31,001
Sept.	33,301	25,314,412	33.94	3,500	3,036,929	38.74	29,801
Oct.	30,184	22,163,282	32.78	2,513	2,042,713	36.29	27,67
Nov.	28,592	27,395,428	31.69	2,469	2,014,196	36.43	26,123
Dec.	30,737	22,213,574	32.26	2,655	2,245,754	37.77	28,082
1928:							
Jan.	39,107	30,278,444	34.56	1,988	1,734,990	38.95	37,119
Feb.	33,663	27,763,655	36.82	2,738	2,229,539	36.35	30,925
Mar.	40,611	32,103,042	35.29	3,718	2,587,435	31.07	36,893
Apr.	37,935	27,287,266	32.11	2,272	1,415,024	27.80	35,663
May	31,059	19,058,672	27.39	2,399	1,386,307	25.80	28,660
June	27,765	14,121,219	22.71	2,621	1,400,697	23.86	25,144
July	31,258	14,144,765	20.20	3,087	1,451,446	20.99	28,171
Aug.	31,204	12,860,150	18.39	2,377	1,084,646	20.37	28,827
Sept.	39,235	16,512,019	18.50	3,038	1,384,148	20.34	36,797
Oct.	44,958	18,200,332	18.44	2,405	1,085,407	20.15	41,553
Nov.	36,519	14,878,441	18.19	2,788	1,207,089	18.52	33,731
Dec.	43,511	17,580,966	18.04	2,738	1,165,743	19.00	40,773
1929:							
Jan.	57,564	22,872,943	17.74	3,663	1,778,401	21.61	53,901
Feb	64,265	24,760,111	17.20	2,955	1,374,782	20.77	61,310
Mar.	50,604	20,330,905	17.98	4,218	2,094,037	22.16	46,386
Apr.	55,725	25,542,726	20.46	3,293	1,624,237	22.02	52,432
May	51,161	24,355,511	21.25	2,336	1,349,690	21.24	48,825
June	41,663	18,799,307	20.14	3,152	1,470,746	20.83	38,511
July	43,944	19,342,147	19.65	3,424	1,590,411	20.73	40,520
Aug.	37,222	16,536,090	19.83	2,644	1,232,217	20.80	34,578
Sept.	34,472	15,214,485	19.70	2,011	861,068	19.11	32,461
Oct.	38,163	16,192,261	18.94	2,614	1,190,510	20.33	35,549
Nov.	43,507	18,189,305	18.66	2,929	1,300,354	19.82	40,578
Dec.	42,952	17,573,330	18.27	2,745	1,007,279	16.38	40,207
1930:							
Jan.	47,496	17,793,563	16.72	3,144	1,077,415	15.30	44,352
Feb.	42,687	14,798,240	15.48	2,280	960,790	18.80	40,407
Mar.	44,976	14,658,243	14.54	3,187	1,192,708	16.71	41,789
Apr.	45,423	14,783,605	14.53	2,688	892,532	14.82	42,735
May	42,692	13,373,232	13.98	3,154	1,085,432	15.37	39,538
June							

U. S. Consumption of Crude Rubber

(Rubber Manufacturers' Association statistics raised to 100 per cent—All figures in long tons)

Figures on Monthly Basis

	1923	1924	1925	1926	1927	1928	1929	1930
Jan.	30,106	29,058	29,638	32,196	31,518	34,403	43,002	36,669
Feb.	30,149	25,736	29,761	31,136	30,137	33,702	41,594	32,726
Mar.	36,629	28,385	33,498	32,926	36,141	35,688	44,730	35,914
Apr.	29,085	27,129	34,139	32,696	35,871	32,772	47,521	40,207
May	36,155	25,845	35,322	29,364	34,592	37,333	49,233	39,902
June	24,272	22,753	35,822	28,598	33,801	37,676	43,227	34,463
July	17,685	23,396	36,053	27,577	29,219	37,407	41,526	
Aug.	20,359	28,982	35,909	34,533	33,460	42,927	38,274	
Sept.	17,594	31,497	31,691	32,904	27,214	39,882	34,707	
Oct.	21,321	31,520	29,047	29,836	26,790	40,857	34,800	
Nov.	20,437	27,289	28,853	28,080	26,792	37,461	27,659	
Dec.	31,902	27,199	28,748	26,293	25,492	31,232	23,531	
Totals	305,694	328,769	388,481	366,149	371,027	441,340	469,804	

Figures on Quarterly Basis

Quarter	1923	1924	1925	1926	1927	1928	1929	1930
Jan./Mar.	96,776	87,609	95,263	94,301	99,216	103,558	128,565	101,610
Apr./June	89,493	75,674	104,099	87,109	103,242	103,500	139,292	
July/Sept.	55,621	83,813	99,493	93,793	89,210	117,573	113,746	
Oct./Dec.	63,617	92,656	85,789	83,212	80,860	117,597	84,872	
Totals	305,507	339,752	384,644	358,415	372,528	442,227	466,475	

Note—The Rubber Association estimates its monthly rubber consumption figures to be 90 per cent complete. Up until 1925 the quarterly figures were likewise estimated to be 90 per cent complete; beginning with 1925 an estimate of 92 per cent completeness has been used. These estimates have been used in raising the figures in this table to 100 per cent. The quarterly figures are generally regarded as the most authentic; the monthly figures may be accepted as preliminary.

Rubber Invoiced to the U. S.

(Reported by American Consuls—Quantities in Long Tons)

During the Week Ended	From Br. Malaya	From Ceylon	From Dutch East Indies	From London & Liverpool	Total
Apr. 26	5,558	642	1,224	—	7,424
May 3	7,703	1,384	1,806	25	10,918
May 10	6,863	891	1,271	11	9,036
May 17	8,359	650	1,874	30	10,913
May 24	6,041	741	1,500	162	8,444
May 31	6,532	738	1,746	54	9,070
June 7	6,443	1,020	1,971	24	9,458
June 14	5,938	631	1,586	63	8,218
June 21	5,823	886	1,693	36	8,438
June 28	6,732	710	921	10	8,373
July 5	5,878	724	1,772	—	8,374
July 12	6,594	315	1,537	6	8,452

Daily Spot Closing Prices of Ribbed Smoked Sheet Rubber—*New York Market, in Cents per Pound*

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	Ave
1928																																
February	87½	87¾	87¾	87⅝	—	86⅝	87	86⅝	84¼	83⅞	83⅞	—	—	82	82½	81¾	81¾	81¼	—	80⅞	28⅝	—	28½	28½	—	—	—	—	—	—	—	82¾
March	29	28⅞	28⅞	—	29	28⅝	26¾	25½	26¼	25¼	25¼	24¾	24¾	25½	25¼	25¼	25¼	25¼	26⅝	26¾	26	26¼	27¾	27½	—	26⅝	—	—	27⅝	—	27⅝	26¼
April	—	27¾	27¾	21½	21¼	—	—	—	20	18⅝	18⅝	18⅝	18⅝	18⅝	18⅝	18⅝	17¾	17¾	17⅝	17⅝	17	17	17	17	—	17⅜	—	—	17⅝	—	—	19
May	17½	17⅝	18⅜	19⅜	19⅜	19⅜	19⅜	19⅜	19⅜	19⅜	19⅜	19⅜	19⅜	19⅜	19⅜	19⅜	19⅜	19⅜	19⅜	19⅜	19⅜	19⅜	19⅜	19⅜	19⅜	19⅜	19⅜	20¼	20	19⅜	19⅜	19½
June	19⅜	19⅜	19⅜	19⅜	19⅜	19⅜	19⅜	19⅜	19⅜	19⅜	19⅜	19⅜	19⅜	19⅜	19⅜	19⅜	19⅜	19⅜	19⅜	19⅜	19⅜	19⅜	19⅜	19⅜	19⅜	19⅜	19⅜	19⅜	19⅜	19⅜	19⅜	19⅜
July	19⅜	18⅝	18⅝	19⅜	19⅜	19⅜	19⅜	19⅜	19⅜	19⅜	19⅜	19⅜	19⅜	19⅜	19⅜	19⅜	19⅜	19⅜	19⅜	19⅜	19⅜	19⅜	19⅜	19⅜	19⅜	19⅜	19⅜	19⅜	19⅜	19⅜	19⅜	19⅜
August	19½	19½	19⅜	19⅜	19⅜	19⅜	19⅜	19⅜	19⅜	19⅜	19⅜	19⅜	19⅜	19⅜	19⅜	19⅜	19⅜	19⅜	19⅜	19⅜	19⅜	19⅜	19⅜	19⅜	19⅜	19⅜	19⅜	19⅜	19⅜	19⅜	19⅜	19⅜
September	—	19⅜	19⅜	19⅜	19⅜	19⅜	19⅜	19⅜	19⅜	19⅜	19⅜	19⅜	19⅜	19⅜	19⅜	19⅜	19⅜	19⅜	19⅜	19⅜	19⅜	19⅜	19⅜	19⅜	19⅜	19⅜	19⅜	19⅜	19⅜	19⅜	19⅜	19⅜
October	18⅝	18⅝	18⅝	18⅝	18⅝	18⅝	18⅝	18⅝	18⅝	18⅝	18⅝	18⅝	18⅝	18⅝	18⅝	18⅝	18⅝	18⅝	18⅝	18⅝	18⅝	18⅝	18⅝	18⅝	18⅝	18⅝	18⅝	18⅝	18⅝	18⅝	18⅝	18⅝
November	18⅝	18⅝	18⅝	18⅝	18⅝	18⅝	18⅝	18⅝	18⅝	18⅝	18⅝	18⅝	18⅝	18⅝	18⅝	18⅝	18⅝	18⅝	18⅝	18⅝	18⅝	18⅝	18⅝	18⅝	18⅝	18⅝	18⅝	18⅝	18⅝	18⅝	18⅝	18⅝
December	17¾	—	17¾	17¾	17¾	17¾	18⅛	18	—	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18
1929																																
January	—	22⅜	18⅛	18⅛	18⅛	18⅛	18⅛	18⅛	18⅛	18⅛	18⅛	18⅛	18⅛	18⅛	18⅛	18⅛	18⅛	18⅛	18⅛	18⅛	18⅛	18⅛	18⅛	18⅛	18⅛	18⅛	18⅛	18⅛	18⅛	18⅛	18⅛	18⅛
February	22⅜	22	22	21⅜	22¼	22¼	22¼	22¼	22¼	22¼	22¼	22¼	22¼	22¼	22¼	22¼	22¼	22¼	22¼	22¼	22¼	22¼	22¼	22¼	22¼	22¼	22¼	22¼	22¼	22¼	22¼	22¼
March	26	26	26	26	26	26	25¾	25¾	25¾	25¾	25¾	25¾	25¾	25¾	25¾	25¾	25¾	25¾	25¾	25¾	25¾	25¾	25¾	25¾	25¾	25¾	25¾	25¾	25¾	25¾	25¾	25¾
April	23	23¼	22¼	22⅜	22⅜	22½	22½	22½	22½	22½	22½	22½	22½	22½	22½	22½	22½	22½	22½	22½	22½	22½	22½	22½	22½	22½	22½	22½	22½	22½	22½	22½
May	19⅞	19⅞	19⅞	19⅞	19⅞	20⅞	21⅛	21⅛	21⅛	21⅛	21⅛	21⅛	21⅛	21⅛	21⅛	21⅛	21⅛	21⅛	21⅛	21⅛	21⅛	21⅛	21⅛	21⅛	21⅛	21⅛	21⅛	21⅛	21⅛	21⅛	21⅛	21⅛
June	21¼	21¼	21¼	21¼	21¼	21¼	21¼	21¼	21¼	21¼	21¼	21¼	21¼	21¼	21¼	21¼	21¼	21¼	21¼	21¼	21¼	21¼	21¼	21¼	21¼	21¼	21¼	21¼	21¼	21¼	21¼	21¼
July	20⅝	21¼	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	20⅝
Aug.	21⅜	21	21	20¼	20¼	20¼	20¼	20¼	20¼	20¼	20¼	20¼	20¼	20¼	20¼	20¼	20¼	20¼	20¼	20¼	20¼	20¼	20¼	20¼	20¼	20¼	20¼	20¼	20¼	20¼	20¼	20¼
Sept.	—	20¼	20¼	19⅞	19⅞	19⅞	19⅞	19⅞	19⅞	19⅞	19⅞	19⅞	19⅞	19⅞	19⅞	19⅞	19⅞	19⅞	19⅞	19⅞	19⅞	19⅞	19⅞	19⅞	19⅞	19⅞	19⅞	19⅞	19⅞	19⅞	19⅞	19⅞
Oct.	19⅞	19⅞	19⅞	19⅞	19⅞	19⅞	19⅞	19⅞	19⅞	19⅞	19⅞	19⅞	19⅞	19⅞	19⅞	19⅞	19⅞	19⅞	19⅞	19⅞	19⅞	19⅞	19⅞	19⅞	19⅞	19⅞	19⅞	19⅞	19⅞	19⅞	19⅞	19⅞
Nov.	19⅞	19⅞	19⅞	19⅞	19⅞	19⅞	19⅞	19⅞	19⅞	19⅞	19⅞	19⅞	19⅞	19⅞	19⅞	19⅞	19⅞	19⅞	19⅞	19⅞	19⅞	19⅞	19⅞	19⅞	19⅞	19⅞	19⅞	19⅞	19⅞	19⅞	19⅞	19⅞
Dec.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
1930																																
January	—	15¾	15¾	15¾	15¾	15¾	15¾	15¾	15¾	15¾	15¾	15¾	15¾	15¾	15¾	15¾	15¾	15¾	15¾	15¾	15¾	15¾	15¾	15¾	15¾	15¾	15¾	15¾	15¾	15¾	15¾	15¾
February	16¼	—	15¾	15	15	15¼	15¼	15¼	15¼	15¼	15¼	15¼	15¼	15¼	15¼	15¼	15¼	15¼	15¼	15¼	15¼	15¼	15¼	15¼	15¼	15¼	15¼	15¼	15¼	15¼	15¼	15¼
March	15¾	15	15¾	15¾	15¾	15¾	15¾	15¾	15¾	15¾	15¾	15¾	15¾	15¾	15¾	15¾	15¾	15¾	15¾	15¾	15¾	15¾	15¾	15¾	15¾	15¾	15¾	15¾	15¾	15¾	15¾	15¾
April	16½	16½	16½	15¾	15¾	15¾	15¾	15¾	15¾	15¾	15¾	15¾	15¾	15¾	15¾	15¾	15¾	15¾	15¾	15¾	15¾	15¾	15¾	15¾	15¾	15¾	15¾	15¾	15¾	15¾	15¾	15¾
May	14¾	14¾	14¾	14¾	14¾	14¾	14¾	14¾	14¾	14¾	14¾	14¾	14¾	14¾	14¾	14¾	14¾	14¾	14¾	14¾	14¾	14¾	14¾	14¾	14¾	14¾	14¾	14¾	14¾	14¾	14¾	14¾
June	13⅝	13⅝	13⅝	13⅝	13⅝	13⅝	13⅝	13⅝	13⅝	13⅝	13⅝	13⅝	13⅝	13⅝	13⅝	13⅝	13⅝	13⅝	13⅝	13⅝	13⅝	13⅝	13⅝	13⅝	13⅝	13⅝	13⅝	13⅝	13⅝	13⅝	13⅝	13⅝
July	12¾	12¼	12¼	12	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Average Spot Closing Prices—Ribbed Smoked Sheets

(New York Market)

Average Price per Pound for Years 1910-1921

Year	Cents	Year	Cents	Year	Cents
1910	206.60	1914	65.33	1918	60.15
1911	141.30	1915	65.85	1919	45.70
1912	121.60	1916	72.50	1920	36.80
1913	82.04	1917	72.23	1921	16.36

Average Monthly Price per Pound Since 1922

Months	1922 Cents	1923 Cents	1924 Cents	1925 Cents	1926 Cents	1927 Cents	1928 Cents	1929 Cents	1930 Cents
Jan.	18.82	32.73	25.86	36.71	79.50	38.75	40.25	20.14	15.24
Feb.	16.12	35.14	25.29	36.01	62.25	38.25	32.75	23.97	15.85
Mar.	14.58	34.21	22.83	41.00	59.00	41.04	26.82	24.55	15.34
Apr.	15.99	32.48	22.51	43.64	51.25	40.86	18.97	21.18	14.98
May	15.25	27.39	18.89	58.47	47.75	40.76	18.99	21.46	14.24
June	15.11	26.88	18.81	77.26	42.50	37.25	19.59	20.64	12.45
July	14.67	26.10	22.16	103.16	41.03	34.87	19.40	21.30	—
Aug.	13.98	28.84	26.17	82.99	38.50	35.12	19.46	20.59	—
Sept.	14.44	28.95	27.56	88.88	41.00	33.67	18.47	20.37	—
Oct.	19.78	26.93	31.13	98.01	42.50	34.32	18.83	19.67	—
Nov.	23.88	27.14	34.33	104.80	38.50	37.58	18.26	16.62	—
Dec.	27.42	26.60	37.88	98.51	38.25	40.63	17.97	16.12	—
Average for Year	17.50	29.45	26.20	72.46	48.50	37.72	22.48	20.55	—

London Closing Prices of Ribbed Smoked Sheet

(In Pence Per Pound)

Day	Apr.	May	June	July	Day	Apr.	May	June	July
1	7⅝	7	—	6⅛	17	7½	6⅞	6⅛	—
2	7⅝	7	6⅝	6⅛	18	—	—	6	—
3	7⅝	7	6⅝	6⅛	19	—	6¾	6	—
4	7½	—	6⅝	6⅛	20	—	6⅞	6	—
5	7½	6⅞	6⅝	6⅛	21	—	6⅞	6	—
6	—	6⅞	6⅝	—	22	7⅜	6⅞	—	—
7	7½	6⅞	—	6⅛	23	7⅜	6⅞	5⅞	—
8	7½	7	—	6	24	7¼	7	6⅛	—
9	7½	7⅛	—	5⅞	25	7⅛	—	6⅛	—
10	7½	7⅛	6⅛	5⅞	26	—	7	6⅛	—
11	7½	—	6⅛	5⅞	27	—	6⅞	6⅛	—
12	7½	7	6⅛	5¾	28	7	6⅞	6¼	—
13	—	7	6¼	—	29	7	6⅞	—	—
14	7½	7	6⅛	5⅝	30	7	6⅞	6¼	—
15	7½	6⅞	—	5⅝	31	—	6¾	—	—
16	7½	6⅞	6¼	5½					

Average Monthly Price Per Pound

Month	1928 Pence	1929 Pence	1930 Pence	Month	1928 Pence	1929 Pence	1930 Pence
Jan.	19.310	9.942	7.471	Aug.	9.300	10.505	—
Feb.	15.713	11.875	7.948	Sept.	8.530	10.160	—
Mar.	12.736	12.135	7.595	Oct.	8.807	9.620	—
Apr.	8.864	10.490	7.891	Nov.	8.596	8.442	—
May	8.845	10.717	6.926	Dec.	8.570	7.958	—
June	9.293	10.580	6.195	Average			
July	9.312	11.065	—	for Year	10.656	10.291	—

Spot Closing Cotton Prices

(Middling Upland Grade—New York Market)

Recent Daily Price Per Pound

Day of Month	June	July	Day of Month	June	July	Day of Month	June	July
1	—	13.65	11	15.10	13.10	21	13.70	—
2	16.15	13.60	12	14.80	13.20	22	—	—
3	16.00	13.60	13	14.50	—	23	13.50	—
4	15.90	—	14	13.95	13.10	24	13.05	—
5	16.00	—	15	—	13.20	25	13.45	—
6	15.85	—	16	13.45	13.20	26	13.80	—
7	15.70	13.30	17	13.55	—	27	13.60	—
8	—	13.15	18	13.70	—	28	13.70	—
9	15.70	13.20	19	13.95	—	29	—	—
10	15.25	13.30	20	14.05	—	30	13.55	—
						31	—	—

Average Monthly Price Per Pound

Month	1928 Cents	1929 Cents	1930 Cents	Month	1928 Cents	1929 Cents	1930 Cents
Jan.	19.12	20.22	17.21	Aug.	19.28	18.62	—
Feb.	18.40	20.21	15.62	Sept.	18.67	18.83	—
Mar.	19.38	20.19	15.13	Oct.	19.62	18.46	—
Apr.	20.63	20.29	16.39	Nov.	19.84	17.53	—
May	21.58	19.41	16.43	Dec.	20.22	17.28	—
June	21.50	18.74	14.48	Average			
July	21.36	18.62	—	for Year	19.97	19.03	—

World Stocks of Crude Rubber

ON HAND OR AFLOAT TO THE U. S.

At End of	ON HAND 1928	ON HAND 1929	ON HAND 1930	AFLOAT 1928	AFLOAT 1929	AFLOAT 1930	ON HAND AND AFLOAT 1928	ON HAND AND AFLOAT 1929	ON HAND AND AFLOAT 1930
Jan.	110,244	76,342	126,068	46,441	93,330	65,483	156,685	169,672	191,551
Feb.	108,956	90,058	134,790	48,044	75,790	71,015	156,999	165,848	205,805
Mar.	114,061	100,536	141,843	43,378	67,065	63,646	157,439	167,601	205,489
Apr.	113,083	107,659	148,272	32,783	65,798	63,261	145,866	173,457	211,533
May	105,356	97,192	146,179	33,145	65,793	68,168	138,501	162,985	214,347
June	90,198	92,061	151,485	38,392	54,668	58,657	128,590	146,729	210,142
July	83,242	92,535		42,943	46,145		126,185	138,680	
Aug.	68,994	90,769		54,904	49,423		123,898	140,192	
Sept.	68,851	84,362		52,692	58,758		121,543	143,120	
Oct.	66,421	88,483		45,646	59,180		112,067	147,663	
Nov.	61,956	92,219		75,502	62,358		137,458	154,577	
Dec.	66,166	118,609		92,037	62,388		158,203	180,997	

(Rubber Manufacturers' Association figures raised to 100%.)

STOCKS IN GREAT BRITAIN

Stocks in London

(No. of Tons in Wharves and Warehouses, including Latex)

At end of	1928	1929	1930	At end of	1928	1929	1930
Jan.	66,524	25,191	60,434	July	35,429	30,080	
Feb.	62,964	25,554	64,557	Aug.	32,084	35,605	
Mar.	58,272	28,214	68,925	Sept.	31,440	42,188	
Apr.	53,425	31,368	74,676	Oct.	24,207	47,803	
May	44,628	31,290	77,312	Nov.	17,775	52,454	
June	38,756	31,025		Dec.	19,815	54,304	

At End of Recent Weeks

	First Saturday	Second Saturday	Third Saturday	Fourth Saturday	Fifth Saturday
1930					
February	60,460	61,482	62,659	62,725	
March	64,383	66,418	66,885	68,404	69,233
April	71,477	72,333	73,252	74,084	
May	75,540	76,118	76,932	76,953	77,198
June	77,616	78,104	78,888	79,699	
July	80,060	80,501			

Stocks in Liverpool

1930				
February	19,898	19,761	19,677	19,704	
March	20,693	20,727	20,849	21,187	21,198
April	22,008	22,676	22,663	23,546	
May	23,877	23,755	24,443	24,722	25,526
June	25,320	26,646	27,354	27,493	
July	28,143	28,226			

STOCKS IN PENANG AND SINGAPORE

(Stocks held by Dealers—Quantities in Long Tons)

End of	1928	1929	1930	End of	1928	1929	1930
Jan.	25,868	29,617	39,727	July	18,663	33,859	—
Feb.	22,867	32,373	44,371	Aug.	18,971	30,834	—
Mar.	20,538	29,437	45,657	Sept.	14,898	32,138	—
Apr.	16,946	26,474	48,473	Oct.	12,149	33,770	—
May	17,437	30,764	44,715	Nov.	29,188	30,963	—
June	18,207	30,403	42,451	Dec.	32,895	35,548	—

STOCKS IN OTHER CENTRES

1930 End of	Malaya Mainland	Afloat for Europe[1]	Holland	Colombo	Para and Manaos
Jan.	44,740	28,440	2,134	5,400	3,668
Feb.	41,955	28,180	2,159	5,000	4,370
Mar.	39,206	27,510	2,220	4,759	4,578
Apr.	39,758	23,580	2,204	4,000	4,482
May	26,482	24,044			4,388
June					

(1) Reported by U. S. Department of Commerce.

Rims Inspected and Passed in U. S.

(Tire and Rim Association Reports)

	Total	Per Cent Balloons		Total	Per Cent Balloons
1922	16,297,735	0.0	1926	24,199,524	78.8
1923	23,140,620	0.6	1927	19,700,003	79.1
1924	21,863,311	19.7	1928	24,247,282	81.6
1925	26,001,664	66.8	1929	24,141,502	80.3
1929			1930		
July	1,896,666	78.2	January	1,601,326	84.0
August	1,570,099	79.4	February	1,653,421	78.9
September	2,110,003	80.7	March	2,061,999	79.1
October	1,647,350	76.4	April	2,339,834	81.1
November	596,989	64.7	May	2,010,067	84.3
December	879,259	79.0	June	1,338,226	83.5

U. S. Tire and Tube Statistics

(All Figures Represent Thousands)

AUTOMOBILE CASINGS

Figures for Recent Years

	1922	1923	1924	1925	1926	1927	1928	1929
Production	40,932	45,259	51,633	60,845	61,237	64,439	77,944	73,308
Shipments	39,987	45,204	50,120	59,262	59,002	64,059	74,296	74,021
Inventory[2]	6,132	5,772	7,427	8,142	10,456	10,264	13,624	12,627

Figures for Recent Months

	PRODUCTION 1928	1929	1930	SHIPMENTS 1928	1929	1930	INVENTORY 1928	1929	1930
Jan.	5,358	6,722	4,745	5,394	6,626	4,701	9,949	13,712	12,719
Feb.	6,363	6,912	4,859	5,031	5,282	4,474	11,721	15,495	13,238
Mar.	6,819	7,519	5,188	5,731	6,708	5,032	12,389	16,351	13,469
Apr.	6,178	7,884	6,024	5,812	7,294	5,429	12,717	16,929	13,948
May	6,759	8,145	6,099	6,457	7,184	5,564	13,024	17,849	14,327
June	6,692	7,304	——	7,117	7,254	——	12,162	17,957	——
July	6,498	6,475	——	7,895	7,855	——	11,157	15,830	——
Aug.	7,469	5,806	——	8,403	7,845	——	10,034	14,226	——
Sept.	6,802	4,758	——	7,145	5,998	——	9,765	12,875	——
Oct.	7,326	4,919	——	5,717	4,960	——	11,520	12,845	——
Nov.	6,075	3,603	——	4,998	3,558	——	12,579	12,935	——
Dec.	5,605	3,261	——	4,591	3,346	——	13,624	12,627	——

AUTOMOBILE INNER TUBES

Figures for Recent Years

	1922	1923	1924	1925	1926	1927	1928	1929
Production	50,850	60,116	70,706	82,614	76,618	70,823	80,180	78,417
Shipments	49,673	59,072	68,016	81,004	71,591	72,896	77,127	75,298
Inventory[2]	7,643	8,425	11,052	11,313	16,200	13,692	16,117	13,360

Figures for Recent Months

	PRODUCTION 1928	1929	1930	SHIPMENTS 1928	1929	1930	INVENTORY 1928	1929	1930
Jan.	5,441	6,517	4,914	6,072	7,242	5,181	12,982	15,386	13,551
Feb.	6,895	6,769	4,943	5,431	5,278	4,627	14,650	16,999	13,905
Mar.	6,231	7,466	5,271	5,731	6,737	5,042	15,573	17,750	14,057
Apr.	6,661	7,634	5,877	5,702	7,164	5,172	16,638	18,134	14,704
May	7,168	7,660	5,904	6,300	7,038	5,412	17,702	18,928	14,775
June	6,953	6,978	——	7,136	6,950	——	17,159	17,741	——
July	6,674	6,178	——	8,729	8,113	——	14,974	16,332	——
Aug.	8,343	5,846	——	9,350	8,183	——	13,931	14,157	——
Sept.	7,103	5,536	——	7,154	6,250	——	13,543	13,424	——
Oct.	6,929	5,310	——	5,662	5,001	——	15,285	13,656	——
Nov.	5,592	3,780	——	5,002	3,712	——	15,743	13,701	——
Dec.	5,184	3,716	——	4,858	3,631	——	16,117	13,660	——

(1) Rubber Manufacturers' Association figures, raised to 100%. The Association estimates its figures to be 75% representative or complete when issued and that basis has been accepted when preparing the statistics in this table.

(2) Held by manufacturers at end of period indicated.

Automobile Production

	United States Total	Passenger Cars	Trucks	Canada Total	Passenger Cars	Trucks	Grand Total
1923	4,020,255	3,631,728	388,527	146,438	129,228	17,210	4,166,693
1924	3,600,918	3,203,049	397,869	135,246	117,765	17,481	3,736,164
1925	4,265,704	3,760,459	505,245	161,389	139,311	22,078	4,427,093
1926	4,298,799	3,808,753	490,046	205,092	164,483	40,609	4,503,891
1927	3,393,887	2,938,868	453,019	179,426	146,870	32,556	3,573,313
1928							
July	390,445	237,933	52,512	25,226	20,122	5,104	415,671
Aug.	458,429	400,689	57,740	31,245	24,274	6,971	489,674
Sept.	413,722	358,872	54,850	21,193	16,572	4,621	434,915
Oct.	397,096	339,976	57,120	18,536	13,016	5,520	415,632
Nov.	256,936	217,256	39,680	11,769	8,154	3,615	268,706
Dec.	233,135	205,144	27,991	9,425	6,734	2,691	242,560
TOTAL	4,357,384	3,826,613	530,771	242,382	196,737	45,645	4,599,944
1929							
Jan.	402,154	350,617	51,537	21,501	17,164	4,337	423,655
Feb.	466,084	407,589	58,495	31,287	25,584	5,703	497,371
March	584,733	513,266	69,559	40,621	32,833	7,788	625,354
April	620,656	538,679	81,977	41,901	34,392	7,509	662,557
May	603,969	516,055	86,596	31,559	25,129	6,430	635,528
June	545,252	453,956	91,296	21,492	16,511	4,981	566,744
July	500,331	427,213	73,118	17,461	13,600	3,861	517,792
Aug.	499,629	444,711	54,918	14,214	11,037	3,177	513,843
Sept.	415,332	365,451	49,881	13,817	10,710	3,107	429,149
Oct.	380,011	321,195	58,816	14,523	8,975	5,548	394,534
Nov.	217,570	170,928	46,642	9,424	7,137	2,287	226,994
Dec.	119,950	92,717	27,233	5,495	4,426	1,069	125,445
TOTAL	5,358,361	4,603,609	754,752	263,295	207,498	55,797	5,621,656
1930							
Jan.	273,089	235,099	37,990	10,388	8,856	1,532	283,477
Feb.	323,962	276,833	47,129	15,548	13,021	2,527	339,510
March	401,378	336,178	64,200	20,730	17,165	3,565	422,108
April	442,630	375,171	67,459	24,257	20,872	3,385	466,887
May	417,154	362,784	54,370	24,672	21,251	3,421	441,826
June	335,475	289,704	45,771	15,090	12,194	2,896	350,565

Exports of Crude Rubber from Principal Producing Countries

(*Long Tons*)

	BRITISH MALAYA[1]							DUTCH EAST INDIES[2]						
	Gross Exports	Imports	Gross Exports Minus Imports	Ceylon[3]	India & Burma[3]	Sarawak[4]	British North Borneo[3]	Siam[4]	Java & Madura	Sumatra E. Coast	Other D.E.I.	Indo-China[3]	Amazon Valley	All Other[4]	World Total[5]
1923	252,016	70,432	181,584	39,971	6,416	5,705	4,237	1,718	32,930	46,344	57,822	5,067	16,765	7,856	406,958
1924	259,706	108,524	151,182	39,997	7,697	6,699	4,621	2,962	42,446	54,497	80,347	6,688	23,165	9,065	429,866
1925	316,825	158,022	158,803	49,566	10,082	5,424	5,377	5,377	46,757	65,499	120,626	7,881	25,298	13,797	517,629
1926	391,328	151,243	240,085	58,962	9,874	9,155	6,079	4,027	52,186	71,413	121,231	8,203	24,298	16,017	621,550
1927	371,322	182,845	188,477	55,356	11,321	10,923	6,582	5,472	55,297	77,816	142,171	8,645	28,782	15,633	606,474
1928	409,430	149,787	259,643	57,267	10,790	10,087	6,698	4,813	58,848	82,511	121,770	9,548	21,129	10,690	653,794
1929	574,836	163,092	411,744	81,584	11,663	11,077	7,381	5,018	65,990	87,789	134,037	9,696	21,148	6,767	853,894
1928:															
Apr.	20,139	9,335	10,804	3,233	789	630	494	258	3,993	5,040	5,499	736	1,014	1,323	33,310
May	26,488	10,350	16,138	3,091	654	842	494	241	4,943	5,355	10,347	717	2,602	1,135	45,994
June	22,994	16,168	6,826	3,107	963	926	494	451	5,419	5,863	13,655	725	1,399	960	40,788
July	30,481	13,383	17,098	5,129	1,043	905	593	366	5,602	7,566	11,594	698	1,264	878	52,731
Aug.	35,674	15,114	20,560	5,720	398	1,227	593	544	5,668	7,438	11,893	712	1,732	450	56,936
Sept.	29,769	11,289	18,480	4,675	457	938	594	447	4,956	6,536	9,863	969	1,614	494	50,075
Oct.	24,476	12,603	11,873	3,999	864	949	564	457	5,295	7,474	10,124	513	1,399	732	44,243
Nov.	68,135	10,436	57,699	8,005	1,048	772	564	425	4,950	7,902	7,805	943	1,790	623	92,526
Dec.	66,763	11,122	55,641	7,848	1,113	744	565	294	5,120	8,792	10,896	948	2,220	588	94,769
1929:															
Jan.	52,546	13,415	39,131	8,301	1,664	873	600	461	5,640	8,067	11,076	850	2,134	642	79,439
Feb.	47,926	12,103	35,823	7,064	1,117	955	600	495	6,572	7,511	10,384	807	2,104	528	73,952
Mar.	49,448	14,553	34,895	6,553	1,413	758	601	499	5,515	6,620	10,629	658	2,332	786	71,289
Apr.	49,816	11,414	38,402	5,097	727	747	548	306	5,997	6,645	11,321	673	1,950	569	72,982
May	43,960	15,593	28,367	5,723	800	966	548	453	6,264	6,961	13,437	1,059	1,922	733	67,238
June	40,398	14,344	26,054	5,563	1,122	1,061	547	422	5,582	6,693	11,270	757	1,398	548	61,017
July	46,454	15,071	31,383	5,457	974	1,247	641	462	6,422	7,192	13,995	575	1,457	543	70,348
Aug.	50,441	15,469	34,972	6,079	685	993	641	431	4,644	7,298	10,782	1,032	1,563	499	69,619
Sept.	53,484	12,392	41,092	7,993	384	832	640	406	4,708	7,517	10,149	655	1,566	504	76,446
Oct.	47,937	12,516	35,421	8,381	812	1,047	671	485	4,697	8,295	10,512	893	1,606	445	73,265
Nov.	46,279	11,204	35,075	6,660	1,065	668	672	278	4,760	6,711	9,380	771	1,442	535	68,017
Dec.	46,147	15,018	31,129	8,683	900	930	672	320	5,189	8,279	11,102	966	1,674	443	70,287
1930:															
Jan.	52,535	11,773	40,762	7,741	1,560	791	600*	386	5,709	7,831	8,920	856	1,837	585	77,578*
Feb.	48,947	12,960	35,987	7,825	1,245	847	600*	469	6,900	7,191	11,414	944	1,797	480	75,699*
Mar.	47,320	13,236	34,084	6,269	1,129	976	600*	391	5,796	6,612	11,070	643	1,674	536	69,780*
Apr.	45,517	16,331	29,186	5,030	856	1,026	600*	366	4,802	6,326	12,582	433	1,201	472	62,880*
May	49,388	36,135	13,253	5,947		917	600*	350	6,352	6,661	11,916	753	1,383	450*	

(1) Malayan net exports cannot be taken as production, since imported rubber is largely wet native rubber, which is reduced about one-third in weight by remilling; rubber exported as latex is not included which on a basis of 3½ pounds per gallon amounted to 115 tons in 1923, 1,117 in 1924, 3,618 in 1925, 3,263 in 1926, 2,439 in 1927 and 1,437 in 1928. (2) Ceylon Chamber of Commerce statistics until 1926; rubber exported as latex is not included— such shipments were equivalent to 18 tons in 1923, 93 tons 1924, 6 tons 1925, 20 tons in 1926, about ½ ton in 1927, and 1 ton in 1928. (3) Official statistics. (4) Imports into Singapore and Penang. (5) Exports from "Other D.E.I." are chiefly wet native rubber, which is reduced about one-third in weight by remilling; rubber exported as latex is not included which on a basis of 3½ pounds per gallon amounted to 2,342 tons in 1923, 1,008 tons 1924, 2,239 tons 1925, 44 tons in 1926, 84 tons in 1927, and 1,459 tons in 1928. (6) Calculated from official import statistics of principal consuming countries, viz., United States, United Kingdom, France, Germany, Belgium and Netherlands. This figure includes guayule rubber. (7) This total includes the third column for British Malaya, "Gross Exports minus Imports," and all the figures shown for the other territories. *Figure is provisional; final figure will be shown immediately it becomes available.

Net Imports of Crude Rubber into Principal Manufacturing Countries

(*Long Tons*)

	United States[1]	United Kingdom	France (h)	Germany	Canada (ac)	Japan (da)	Italy	Russia (ce)	Australia (ed)	Belgium (d)	Netherlands	Scandinavia (abcdf)	Spain (g)	Czechoslovakia (abcd)	World Total
1919	236,977	42,671	17,685	5,584	6,395	9,753	9,894	75	1,002	3,995	2,771	3,149	2,418	9	342,378
1920	248,762	56,844	13,885	11,890	11,746	5,297	6,123	62	1,815	3,840	5,510	2,292	2,008	567	370,641
1921	179,678	42,087	15,135	21,920	8,124	21,713	3,906	165	1,014	1,705	1,022	1,279	2,245	549	300,562
1922	296,267	11,724	24,352	27,546	9,207	15,934	6,430	2,493	2,643	172	-3,807	1,778	589	567	395,888
1923	300,372	12,760	27,392	18,519	13,277	15,372	5,489	2,986	1,649	2,184	792	2,528	630	1,128	405,019
1924	317,747	-11,550	30,446	22,727	14,299	19,571	8,764	2,846	3,124	2,688	-807	3,178	944	1,370	414,847
1925	381,815	4,061	32,956	33,937	19,683	11,117	11,412	7,988	4,757	2,930	875	3,149	1,155	1,558	516,499
1926	395,667	84,865	34,240	22,775	20,229	18,125	9,809	6,529	9,021	2,498	2,670	4,046	1,299	1,870	613,647
1927	398,483	60,249	34,271	38,892	26,405	20,521	11,381	12,013	9,490	6,482	636	4,224	2,055	2,672	627,789
1928	404,496	4,846	36,498	37,855	30,447	25,621	12,488	15,134	8,430	7,958	2,243	4,418	3,178	3,188	596,695
1929	526,709	122,675	55,093	49,275	35,453	34,284	17,169	11,774	15,886	9,445	3,022	6,440	864	4,650	892,789
1928:															
April	35,663	—2,280	2,204	2,719	1,988	2,334	1,114	1,820	832	575	280	339	304	159	48,001
May	28,660	—5,822	3,297	2,944	2,180	2,288	1,090	3,893	655	746	209	485	220	213	41,559
June	25,143	—3,031	3,597	2,968	2,186	2,102	984	4,111	848	743	133	346	251	182	40,068
July	28,170	—1,374	3,518	3,387	2,692	2,026	1,598	724	591	895	395	294	175	384	43,475
Aug.	28,827	48	3,527	2,744	2,447	1,868	875	632	707	519	316	359	58	94	43,021
Sept.	36,800	4,199	3,524	3,553	2,812	1,537	1,278	20	603	597	845	398	277	235	56,457
Oct.	41,667	—934	3,728	4,386	2,943	3,711	1,049	93	766	696	141	527	250	318	59,346
Nov.	33,846	—3,141	3,278	3,694	2,799	2,150	1,340	689	837	544	81	557	252	282	46,988
Dec.	40,781	8,438	3,633	2,470	2,618	3,002	1,145	1,378	755	639	148	485	263	200	65,905
1929:															
Jan.	53,922	11,951	5,645	4,711	3,759	3,776	1,481	956	1,061	749	218	638	179	525	89,571
Feb.	61,331	5,179	5,001	4,613	2,996	2,727	1,259	684	1,131	627	113	226	115	356	86,270
Mar.	46,391	9,068	4,409	4,586	4,961	2,630	1,515	716	725	931	316	354	80	409	77,091
Apr.	52,447	8,295	4,854	5,351	3,177	2,308	1,407	703	1,518	750	144	956	40	445	82,395
May	48,350	5,112	3,152	3,682	2,937	2,314	1,417	996	1,437	854	201	468	37	277	71,234
June	38,676	4,787	6,814	3,948	3,075	1,593	1,624	695	2,215	672	687	507	24	420	65,787
July	40,914	4,993	4,839	3,559	3,205	2,388	2,023	1,056	2,918	1,039	253	519	30	465	68,201
Aug.	35,207	14,594	4,645	4,082	2,879	3,663	908	1,234	724	902	254	429	25	319	69,865
Sept.	32,171	17,010	3,889	4,691	1,908	3,511	1,224	1,235	858	672	253	361	91	477	68,346
Oct.	35,840	16,111	4,489	3,355	1,821	3,902	1,838	1,073	1,125	1,147	278	710	91	201	71,981
Nov.	40,972	13,141	3,082	3,776	2,709	3,221	1,275	1,226	1,453	361	253	595	62	313	72,439
Dec.	40 488	12,434	4,274	2,921	2,114	2,251	1,198	1,200	726	741	52	677	90	443	69,609
1930:															
Jan.	44,759	11,106	4,207	3,862	2,842	2,805	910	2,292	332	612	209	552	200*	577	75,265
Feb.	40,718	10,293	4,482	3,697	2,250	1,386	1,385	2,128	457	1,143	188	315	200*	239	68,881
Mar.	42,068	12,346	4,354	4,289	3,776	2,485	1,083	948	975	678	358	322	200*	263	74,145
Apr.	42,961	13,058	4,962	4,488	2,303	2,584	2,067	1,000*	673	1,431	158	461	200	255	76,601*
May	40,287	9,861		4,379			1,279								

a—Including gutta percha. b—Including balata. c—Re-exports not deducted in monthly statistics. d—Including some scrap and reclaimed rubber. e—Official statistics of rubber imports by Soviet Russia. f—Including Norway, Sweden, Denmark and Finland. g—United Kingdom and French exports to Spain except in years prior to 1925. h—French imports have been reduced 12 per cent in order to eliminate imports of gutta percha and to reduce to basis of net weight. [1]United States imports of guayule are not included in this compilation; such imports amounted to 4,305 tons in 1926; to 5,010 tons in 1927; to 3,076 in 1928; and to 1,231 tons in 1929. *Figure is provisional; final figure will be shown immediately it becomes available.

Domestic Production of Miscellaneous Rubber Goods

	Rubber Proofed Fabrics Yards	Rubber Heels Pairs	Rubber Soles Pairs	Mechanical Goods Shipments Dollars
1924	25,620,000	186,279,000	(1)	$48,615,000
1925	23,988,000	206,970,000	16,211,620(2)	64,877,000
1926	29,328,000	183,812,000	12,253,000	76,789,000
1927	37,872,000	201,014,000	27,160,000	68,625,000
1928	41,179,000	235,170,000	37,645,000	69,114,000
1929	50,781,000	232,126,000	34,499,000	74,770,000
1929:				
June	4,409,000	20,007,000	2,502,000	6,792,000
July	4,260,000	19,315,000	1,295,000	6,306,000
August	5,085,000	23,095,000	2,948,000	6,792,000
September	5,507,000	21,702,000	2,841,000	5,906,000
October	6,116,000	22,386,000	3,502,000	5,887,000
November	4,395,000	17,863,000	3,400,000	4,932,000
December	2,291,000	14,781,000	3,003,000	4,751,000
1930:				
January	3,281,000	15,470,000	3,496,000	5,169,000
February	3,441,000	14,172,000	2,338,000	5,376,000
March	3,570,000	15,439,000	2,582,000	5,981,000
April	4,029,000			

(1) Not available; (2) Last 9 months only.
Source: "Survey of Current of Business of the Department of Commerce."

United States Imports of Guayule Rubber and Related Gums

(All quantities in Long Tons)

	Guayule Tons	Guayule Dollars	Balata Tons	Balata Dollars	Jelutong Tons	Jelutong Dollars	Gutta Percha Tons	Gutta Percha Dollars
1919	1,480	760,690	727	937,088	8,882	2,213,964	2,900	1,068,698
1920	758	345,985	1,064	1,260,043	5,672	2,068,501	3,183	1,520,309
1921	58	26,945	814	1,077,859	1,745	351,893	985	333,564
1922	127	57,040	812	978,765	2,335	403,812	818	281,012
1923	1,155	542,227	700	898,524	4,565	853,308	912	375,167
1924	1,356	586,892	464	568,456	6,165	1,237,100	1,408	463,610
1925	3,781	1,803,448	517	574,750	6,749	1,642,531	1,603	629,284
1926	4,305	2,562,096	354	327,218	7,263	3,127,757	1,445	661,156
1927	5,018	2,674,957	592	447,246	7,785	2,448,657	1,494	728,172
1928	3,075	1,755,685	731	430,855	7,552	2,540,059	1,597	777,128
1929	1,231	545,175	728	566,964	8,203	2,458,126	447	167,479
1929:								
July	200	86,175	49	46,440	572	180,065	14	5,807
Aug	190	80,443	58	47,769	575	171,733	—	—
Sept.	107	51,156	38	30,327	918	279,225	—	—
Oct.	200	79,968	58	43,756	636	181,421	—	—
Nov.	125	47,796	13	11,600	583	182,677	49	14,935
Dec.	100	41,328	25	19,955	550	156,939	51	12,095
1930:								
Jan.	150	55,272	28	28,549	509	141,384	—	—
Feb.	75	25,956	52	45,319	367	93,087	—	—
Mar.	148	50,007	16	12,498	522	128,844	—	—
Apr.	75	19,856	58	54,543	416	103,089	—	—
May	172	57,760	17	13,645	602	144,415	—	—

Reclaimed Rubber in the United States

(All Quantities in Long Tons—100% Basis)

Year	Production	Consumption Tons	Consumption % to Crude	Stocks*	Year	Production	Consumption Tons	Consumption % to Crude	Stocks*
1920	86,395	75,297	38.4	.....	1925	132,930	137,105	35.6	13,203
1921	36,725	41,351	24.1	.....	1926	180,582	164,590	45.9	23,218
1922	57,534	54,458	19.3	.....	1927	189,144	178,471	47.6	24,980
1923	74,766	69,534	22.7	.....	1928	208,516	223,000	50.4	24,785
1924	80,079	76,072	22.4	.....	1929	218,954	226,588	48.4	27,464
1928:									
Jan.	14,862	20,140	58.5	21,941	July	17,278	19,070	51.0	17,305
Feb.	15,291	18,670	55.4	20,848	Aug.	19,049	17,990	41.7	18,881
Mar.	17,969	20,680	57.9	19,558	Sept.	18,693	17,795	44.6	17,901
Apr.	15,393	19,280	58.8	19,223	Oct.	17,182	18,420	45.1	17,026
May	18,945	20,215	54.1	18,127	Nov.	18,245	18,380	49.1	22,399
June	18,781	18,140	48.2	18,769	Dec.	17,728	14,320	45.9	24,785
1929:									
Jan.	18,685	21,068	49.1	24,394	July	18,387	20,236	48.7	19,679
Feb.	18,094	19,829	47.7	22,305	Aug.	19,787	18,230	47.6	22,309
Mar.	19,984	20,867	46.7	22,076	Sept.	18,660	17,071	49.2	24,984
Apr.	19,899	22,435	47.3	20,680	Oct.	18,865	18,744	53.8	25,117
May	20,385	23,176	47.1	19,479	Nov.	14,363	15,330	55.4	26,080
June	18,416	18,141	42.0	17,980	Dec.	13,429	11,531	49.0	27,464
1930:									
Jan.	15,010	17,454	47.6	24,241	July	.....	.....	.....	.....
Feb.	15,846	14,559	44.5	24,243	Aug.	.....	.....	.....	.....
Mar.	17,400	15,241	42.2	24,415	Sept.	.....	.....	.....	.....
Apr.	17,828	16,904	42.0	24,587	Oct.	.....	.....	.....	.....
May	17,812	17,052	42.7	23,356	Nov.	.....	.....	.....	.....
June	15,714	14,063	40.8	24,449	Dec.	.....	.....	.....	.....

*Stocks on hand at the end of month or year. Exports of reclaimed rubber, not shown in this table, amounted to 8,540 tons in 1927, 9,577 tons in 1928, and 12,869 tons in 1929.

U. S. Consumption of Gasoline

(In Barrels of 42 Gallons)

MONTHS	1929	1930	MONTHS	1929	1930
January	22,602,000	25,731,000	July	36,860,000	
February	22,776,000	26,509,000	August	37,759,000	
March	28,495,000	31,029,000	September	34,193,000	
April	32,019,000	34,549,000	October	32,816,000	
May	34,117,000	36,497,000	November	31,502,000	
June	33,163,000		December	26,550,000	

REVIEW DESK

Books, New Publications, Catalogues, Etc.

THE CONDENSED CHEMICAL DICTIONARY. Edited by Thomas C. Gregory. Published by the Chemical Catalog Company, Inc., New York City. 1930. 551 pp. $10 in buckram; $12 in flexible leather, postpaid. (Book obtainable from THE RUBBER AGE, 250 West 57th Street, New York City.)

Nothing is more important than the availability of exact fundamental facts regarding the basic materials of an industry. There are numerous persons associated with every rubber factory who have not been educated along chemical lines, but whose work necessitates their requiring information of various kinds regarding chemicals and chemical products; and even the chemical engineers and other technologists can not have encyclopedic minds. A real need, therefore, is filled by this volume, the second and completely revised edition of a work that sold to the extent of over 16,000 copies in its original form. Several thousand items are indexed, each with its chemical formula, color, properties, derivation, constants, uses, containers, railroad shipping regulations, etc. An appendix contains tables of atomic weights, domestic weights and measures, metric equivalents, Fahrenheit and Centigrade equivalents, specific gravity equivalents, freezing points, boiling temperatures, thermal resistivities, and other valuable data.

LA COLORATION DU CAOUTCHOUC. By F. Jacobs. Published by La Revue Générale du Caoutchouc, 18 Rue Duphot, Paris, France. 1930. 64 pp. 12 francs.

The coloring of rubber and rubber products has always been a difficult problem for technologists. M. Jacobs has organized concisely all information available to him on the various types of colors used in the industry in this illustrated volume. His work, however, was prepared too soon to include the latest developments in rubber dispersed colors.

FOR SAFE HANDLING OF RUBBER INDUSTRY LOADS OVERHEAD. Published by the Cleveland Electric Tramrail Division of the Cleveland Crane & Engineering Company, Wickliffe, Ohio. 1930. 4 pp. For free distribution.

Overhead mechanical materials handling systems are, perhaps, not quite so well known and generally used as they might be in the rubber industry. It is the purpose of this leaflet to describe typical uses in rubber factories.

ANNUAL REPORT, 1929. Published by the Rubber Research Institute of Malaya, Kuala Lumpur, F. M. S. 1930. 100 pp. $1 (Malaya).

Considerable progress was made in the fourth year of the Rubber Research Institute of Malaya, despite important changes in the personnel and shortage of staff. Individual reports are made in this volume by the director, the soils division, botanical division, pathological division, chemical division, bacteriologist and the experimental station, in addition to which the annual accounts are presented in full.

TI-TONE. Published by the Rubber Chemicals Section, E. I. du Pont de Nemours & Company, Wilmington, Del. 1930. 4 pp. For free distribution.

Ti-Tone is a high strength white pigment for rubber. The purpose of the laboratory tests covered by this report was to determine the relative resistance of ordinary lithopone, Ti-Tone and a titanium lithopone.

AGING OF COMPOUNDS CONTAINING ROSIN. Published by the Rubber Chemicals Section, E. I. du Pont de Nemours & Company, Wilmington, Del. 1930. 4 pp. For free distribution.

The adverse effect of rosin on the aging properties of compounds that contain it is well known to all rubber chemists. The tests described in this laboratory report tend to indicate that a certain percentage of Neozone D will counteract the effect of as much as 6 per cent of rosin.

VACATIONS FOR INDUSTRIAL WORKERS. Published by the Policyholders Service Bureau, Metropolitan Life Insurance Company, 1 Madison Avenue, New York City. 1930. 16 pp. For free distribution.

Compiled after a survey of the vacation plans of about 20 companies, this report should be of timely interest to personnel officers and other industrial executives. Among the provisions studied are eligibility, the amount and time of payment for vacations, and the facilities, such as company camps, savings plans and information bureaus. An appendix provides a digest of five typical plans in outline form.